WIRE
& WIRE PRODUCTS

BALLOFFET

The Quality Diamond Dies

1870

1930

Our sixty years experience.
The quality of our stones.
Our special steel setting.
The output of our French Plants.
The large stock we are carrying.

Enable us to take care of the most particular requirements.

Balloffet Diamond Wire Dies Co., Inc.
13-15 East 22nd St., New York City

PLANTS AT

New York **Lagnieu (France)** **Cluses (France)** **Trevoux (France)**

September 1930

Announcing

A REDUCTION IN PRICES EFFECTIVE SEPTEMBER 1, 1930

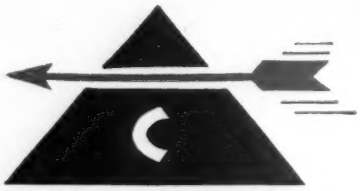
The demand for Carboloy cemented tungsten carbide has increased to an extent which has permitted considerable economy in the production of this alloy. Also contributing to this saving is the fact that the proper use of Carboloy tools has now become more generally known. This has reduced, although by no means entirely eliminated, the extensive and costly educational program which has been essential during the past two years.

Therefore, on Sept. 1st, 1930, a material reduction in the price of Carboloy cemented tungsten carbide became effective. With these new prices, the cost per gram now ranges from its present maximum *down to a minimum which represents a 50% reduction on the original cost per gram.* A sliding scale of prices will determine the cost per tool based upon the number of grams of Carboloy cemented tungsten carbide used in each individual tool.

This new order of prices represents a material saving in the cost of practically every tool required and brings the initial cost of many special tools, requiring large quantities of Carboloy, down to a level which, to the user, will now more obviously justify the initial expenditure. Also many special applications which were heretofore admittedly uneconomical with Carboloy cemented tungsten carbide can now be utilized with a material saving in cost.

In many instances this price reduction will more than double the proportionate savings in tool cost formerly obtained through the economical performance of Carboloy tools.

You are urged to communicate with your local Carboloy representative and secure complete details on this new scale of prices.



The Mark of **CARBOLOY**

TRADE MARK REG.

Look for the mark of Carboloy:—if the mark is not on the product it is not a Carboloy cemented tungsten carbide product.

CARBOLOY COMPANY INC.

GENERAL OFFICES
2481 EAST GRAND BOULEVARD
DETROIT, MICHIGAN, U. S. A.

Speed Production with

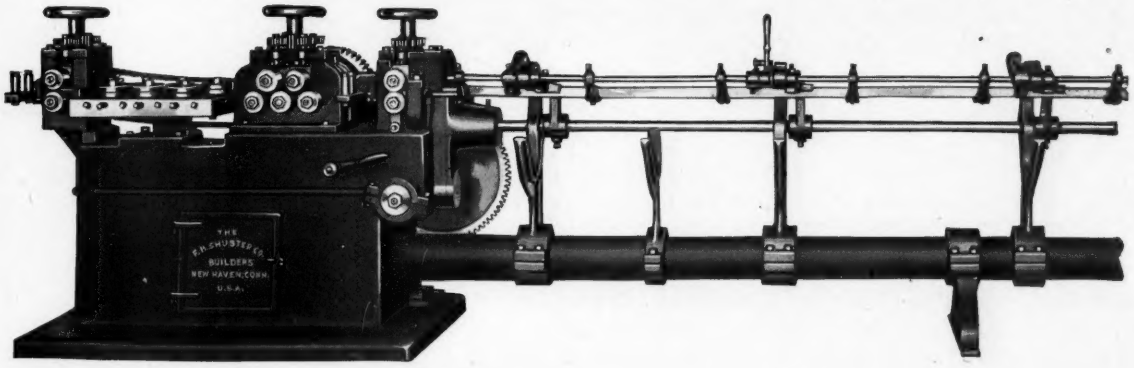
CARBOLOY

TRADE MARK REG.

WIRE & WIRE PRODUCTS, Vol. 5, No. 9, Sept., 1930. Executive office, 551 Fifth Avenue, New York, N. Y. Published by the Quinn-Brown Publishing Corp., Richard E. Brown, President; R. S. Spengel, Secretary and Treasurer. Publication office, 49 E. Washington Ave., Washington, N. J. Subscription price: U. S. and Canada, $5.00 per year, 50 cents per copy; Foreign, 7.50 per year. Entered as second class mail at the Post Office at Washington, N. J., under the Acts of March, 1879, and copyright, 1929, by Quinn-Brown Publishing Corporation.

STRAIGHTEN AND CUT YOUR FLAT WIRE

On SHUSTER Straightening and Cutting Machine



Takes it from the coil, straightens and cuts to accurate lengths at high speed.

This Machine is just as efficient as our ROUND WIRE Machines, and may be furnished to straighten flatwise only, or both flatwise and edgewise at one pass — either belt or motor driven.

Made in several sizes — send specifications and let us tell you what it will do for you.

THE F. B. SHUSTER COMPANY

NEW HAVEN, CONN.

STRAIGHTENER SPECIALISTS SINCE 1866

The Wire Association
What It Will Do For YOU!

Through membership in the Association you will be able to exchange ideas with the best minds in the industry; you will be able to have puzzling technical questions on production answered for you; you will receive the benefits of the research work conducted by the Association for its members. You will be kept in touch with all the latest developments of the industry and you will secure personal contact with others with whom you can interchange ideas for mutual benefit.

During the past month many problems have been solved and many questions answered through the co-operation of members. As an illustration of the value of the Association to YOU, some of the questions handled are given here.

HOW MANY OF THEM CAN YOU ANSWER?

INQUIRY NO. 1.

''We have recently taken up the manufacture of Copper Coated Steel Wire, but we are having trouble in getting a tight coating and we are writing to you in the hope that you can help us.

Our method of manufacture is to draw the wire in the ordinary way down to one gauge heavier than the finished product. On 12 gauge coppered wire, for instance, we draw down to 11 gauge, anneal the wire, clean it and keeping the wire wet from the cleaning, put it into our solution of copper sulphate. This copper sulphate is in a wooden vat and besides containing water and copper sulphate, it also includes a mixture of tallow and acid. The tallow used is a stiff quality edible tallow, thinned down with sulphuric acid. The wire drawn down to 11 1/2 gauge. Then it goes back in the copper sulphate for another 15 minutes and is drawn down to 12 gauges. This gives a nice looking coppered wire but it will not stand any bending or forming. The coating flakes off so easily that there is quite evidently something missing in our mixture, and there is no good bond between the steel and the copper.

We hope that this information will be sufficient for you to tell the cause of our trouble.''

INQUIRY NO 2.

''We are interested in wire nail packing machines for packing nails into cardboard boxes of any size from 1/4 point to 5 points. We have not been able to find any manufacturer making this kind of machine and would ask that you help us in this matter.''

INQUIRY NO. 3.

''May we trouble you to tell us the names and addresses of firms in this country who make a business of importing from Germany and other foreign countries wire cloth of any kind.''

INQUIRY NO. 4.

''We would like to receive the names and addresses of British and German builders of continuous rolling mills for rolling copper wire bars into rods of about 5/16" and 3/8" and 1/4" diameter.''

INQUIRY NO. 5.

''Please supply us with a list of British mauufacturers of wire cloth.''

INQUIRY NO. 6.

''Can you tell us who can make a machine for twisting galvanized wire for us in the special shape shown on the attached diagram?''

INQUIRY NO. 7.

''We have recently been making and installing galvanized collapsible gates, using brass rivets, washers and screws, on some of the steamers leaving this port.

The combination of galvanized iron, brass rivets, etc., and the salt atmosphere seems to set up an action which should not take place in a first class job and which we would like to eliminate. Therefore, we are writing you to ask if you could suggest other material than brass that could be used for rivets, etc., We might mention that we considered Monel metal but as this metal contains 60 per cent copper we do not think it would be of any advantage.''

Why not Let the Wire Association Solve the Plant Problem That Is Worrying YOU, Or Supply Needed Information.

Wire Men! This Is YOUR Association!

Join Today

The Annual Dues for Companies Have Been Fixed at $100.00

The annual dues for individual membership are only ten ($10.00) dollars. Fill out the membership application blank below and send it in immediately

---

THE WIRE ASSOCIATION

The undersigned hereby applies for Active / Associate *membership in the Wire Association, and agrees to be governed by the Charter and By-Laws of the Society and to further its objects as laid down therein.*

Name .....

(*Firm, Organization or Individual applicant*)

Address .....

Nature of Business .....

If corporate membership, name and title of individual who will exercise membership privileges:

Name ..... *Title* .....

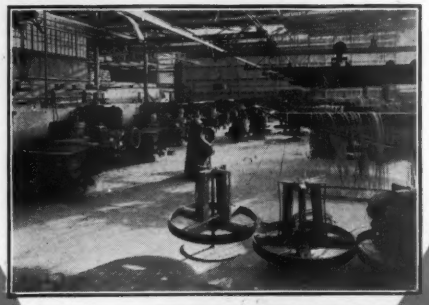
If personal membership, name or organization with which applicant is affiliated and official title or occupation:

Name of Organization .....

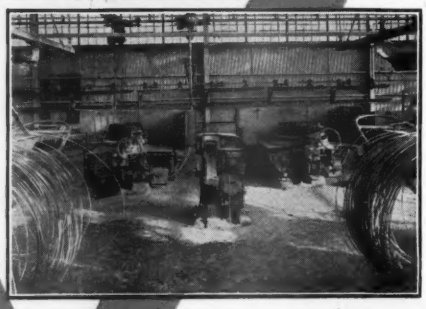
Address of Organization .....

Applicant's Title or Occupation .....

No. 12 Single Deck Motoblocs



No. 12 Double and Single Deck Motoblocs



No. 12 Double Deck Motoblocs

VAUGHN EQUIPMENT

in the new wire mill of the Sheffield Steel Corporation, Kansas City

includes

No. 12 SINGLE DECK MOTOBLOCS
No. 12 DOUBLE DECK MOTOBLOCS
WIRE GALVANIZING UNIT

Wire Galvanizing Unit Take Up Frames

All of which represents the latest and most improved wire machinery from the standpoint of construction, economy of operation and proved performance.

Vaughn engineers are always at your service.

THE VAUGHN MACHINERY COMPANY

CUYAHOGA FALLS, OHIO

EXPORT OFFICE: 420 Lexington Avenue, New York, N. Y.

WIRE & WIRE PRODUCTS

A monthly publication devoted to wire drawing and wire forming

Vol. 5 September 1930 No. 9

Contents

New German Wire Machinery.....Paul Fidrmuc 343
Description of High-speed Rope-making and Stranding Machines with Stationary Spool Carriers.

Cooperation Saves Old Wire Firm.....William J. McNulty 346
Lesson for Manufacturers in Acceptance by Canadian Employees of a "No Profit; No Wages" Plan of Operation.

Physical Properties of Zinc of Interest to Wire Galvanizers.....Wallace G. Imhoff 348
Simple Straightforward Explanation of Properties Intended Primarily for the Mill Foreman or Worker.

No Rejects..... 350
Personalities and Gossip of the Wire Industry as Told by a Roving "Trouble Shooter".

Wire Association Comes Into Being..... 357
What Was Said and Done at the Buffalo Meeting.

A Review of Recent Patents..... 351

News of the Industry..... 354

Exports and Imports..... 356

Professional and Engineering Directory..... 364

Buyers' Guide..... 367

Editor
Morris A. Hall

Associate Editors
L. D. Granger
W. H. Spowers, Jr., Consultant on Galvanizing Problems
Lancaster, Allwine & Rommel, Consultants on Patent Information

R. E. Brown, Business Manager

Executive and Editorial Offices:
551 Fifth Avenue, New York City. Telephone: Murray Hill 10191

Publication Office: Washington, N. J.

Annual Subscription, U. S. and Canada $5.00

50 Cents a Copy Issued Monthly Foreign, $7.50

Copyright, 1930

Official Publication of The Wire Association

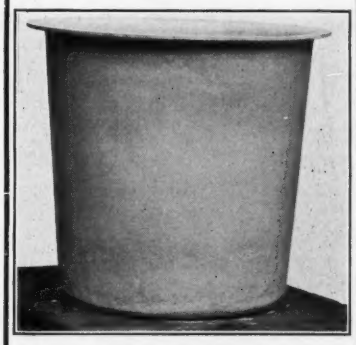
Annealing Pots To Fit Your Needs

We realize that every wire mill has its own ideas as to the proper method of annealing

and that

each mill has its own individual problem and requires a container adapted to its own needs.

We carry out your ideas and make containers for you in any size or shape and of any thickness of material required.



Salt Annealing Pot
(Forge Fire Hammer Welded)

Our Forge Fire hammer welded annealing pots are fabricated of a special analysis high-grade open hearth steel.

The shell or body of the pot can be furnished either straight or tapered.
We are specialists in annealing pots.

Your inquiries solicited.

Our engineers are at your disposal.

Columbiana Boiler Company

COLUMBIANA, OHIO

UN-WIDIA ALLOY DIES

A PROVEN PRODUCT

DIAMOND DIES
UWDC
UN-WIDIA DIES

Specialization makes for progress
We make dies exclusively

Un-Widia Alloy Dies are the result of the collaboration of the world's best known makers of special alloys, Fried Krupp Co., and America's largest wire and tube die manufacturers, the Union Wire Die Corporation, who have the exclusive right to sell Widia metal, for drawing purposes, in the United States, Canada, Mexico and France.

Un-Widia Dies
are now
made for shaped wire

THE KRUPP PRODUCT
Widia metal is made into dies
and sold exclusively in the
UNITED STATES, CANADA, MEXICO and FRANCE
BY

UNION WIRE DIE CORPORATION

NEW YORK

Paris Pittsburgh Hamilton

WIRE
& WIRE PRODUCTS

Devoted to the Production and Fabrication of Wire

Vol. 5 SEPTEMBER, 1930 No. 9

New German Wire Machinery

Description of High-speed Rope-making and Stranding Machines with Stationary Spool Carriers

*By Paul Fidrmuc**

WITH an eye to regaining former world markets, almost all German wire rope makers, in recent years, have replaced their equipment with the newest and most efficient of modern machinery. The so-called bird cage stranding machines with revolving spool carriers have been replaced by high-speed wire rope making and cable stranding equipment with stationary carriers. Such machines can not be employed for all wire rope but according to a recent estimate two-thirds of all wire rope produced in Germany is now made with these high-speed machines and stationary carriers. One of the best known makers of such machinery is Hans Wetzel Aschersleben, some of whose machines are illustrated herewith.

Germany supplies practically all European countries with such machines and ships also to the United States and Canada. The export of wire rope machinery to the U. S. A. and Canada in the first quarter of this year amounted to $37,477. The output of the high speed machines is 3-5 tons greater (according to the type) than that of stranding machines with revolving spool carriers (bird cage machines). The main parts of the high-speed wire rope making machines are the laying element with the spool carriers, into which the spools are filled with the wire inserted, and which rotate at a high speed. Each spool can revolve upon a shaft of its own within the cup-shaped spool carrier. The two journals of the latter are carried in ball bearings fitted within the frame discs of the laying body. Contrary to the low-speed bird cage machine, in which the spool carriers revolve, the latter remain stationary with regard to their position in space, while they are at work.

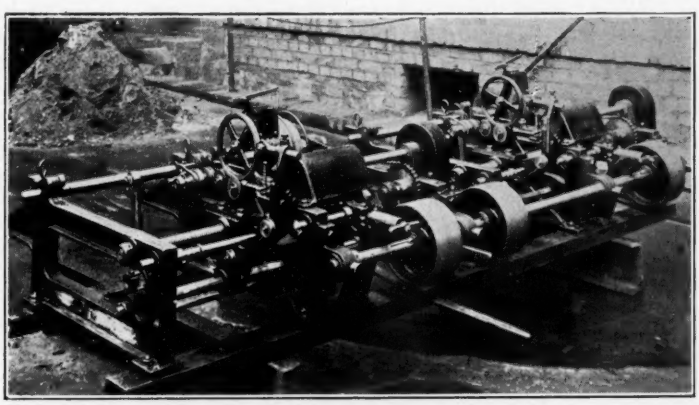
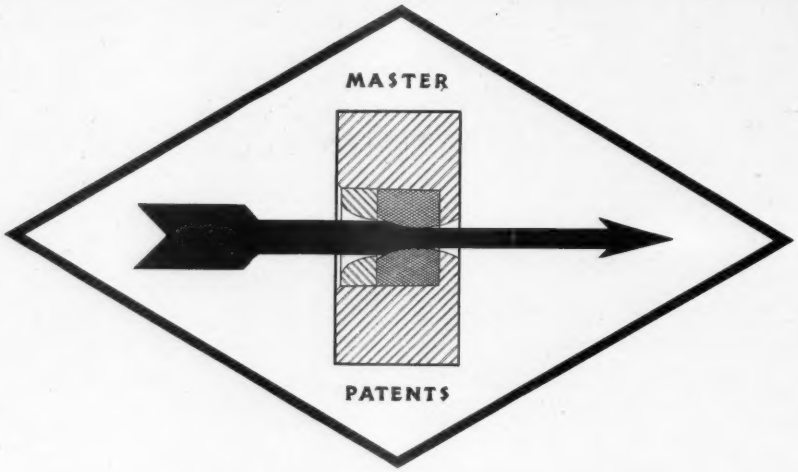


Fig. 1. View of the Small High-speed Machine with Automatic Brushes.

Each of the wires to be stranded runs from its spool to the centre of the next frame disc and is guided through suitable holes over rollers to the circumference of the laying element. From here it is

*Special Correspondent of Wire and Wire Products in Hamburg, Germany.



Tungsten-Carbide Dies

FOR

Wire, Rod and Tube Drawing

Sizes: .010″ to 1.000″

Eliminate Your Die Trouble

with

Master Patent Dies

Made by automatic machinery of special design eliminating the personal element in the manufacture of MASTER DIES. Exact duplicates of any die in any quantity desired are assured by this automatic production.

The product obtained through the use of these dies is beyond comparison. The price is beyond competition.

Master Special Dies for Tube and Rod Drawing

Sizes: .250″ to 3″

MASTER WIRE DIE CORPORATION

408 CONCORD AVE.,
NEW YORK ... N.Y.

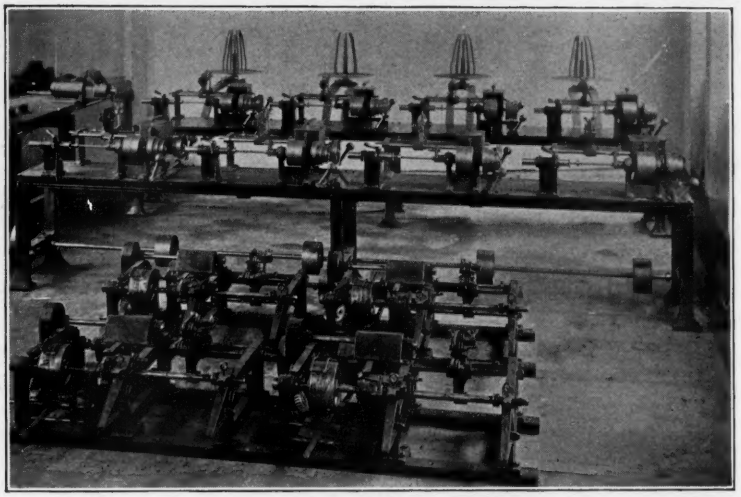


Fig. 2. A Four-spool Wetzel Machine for Producing Small-sized Rope.

led parallel to the longitudinal axis of the machine to the stranding disc, where all converging wires are united to a rope or strand respectively.

Very effective brakes are provided for stopping the machines immediately. These brakes are connected with the disengaging device of the driving mechanism and can be operated from different points of the machine. The operating levers can be arranged as desired upon the left- or right-hand side of the machine. The complete laying element, including the spool carriers, is carried in first class ball bearings the other high-speed bearings having ring lubrication. On account of the smaller diameter, due to the special design of the laying element and the complete balancing of the masses, a very high speed can be allowed, as high as 1,500 r.p.m. in the case of the smaller types.

Core Passes Through Hollow Main Shaft

The working methods are as follows: The spools, filled with wire beforehand upon the spool winders, are inserted into the spool carriers. The centre or core of the rope or cable can be of hemp, wire can also consist of a strand, and is led through the hollow main shaft of the machine off a reel standing apart from the latter.

The length of lay depends upon the speed with which the rope or cable is drawn out of the machine. By using the change gears supplied for the purpose lays of various length can be obtained. All machines can produce right- as well as left-hand lay.

The guiding of the core and of the individual wires within the laying element is effected within interchangeable wire guiding tubes, which entirely prevent damage being done to the material. This arrangement also prevents the operators from being injured should the wire tear. The finished wire rope or cable is wound up by a self-contained winder upon a reel which can be moved out of the apparatus.

Driven By Belt Or Gearing

The machines can be driven either by means of a belt and fast and loose pulley or by an electric motor. As a rule, tooth gearing is arranged between the motor and machine. It is advisable to use a rawhide pinion upon the motor shaft, in order to obtain silent running. If the motor is to be coupled direct with the machine, a mo-

(*Please turn to page 365*)

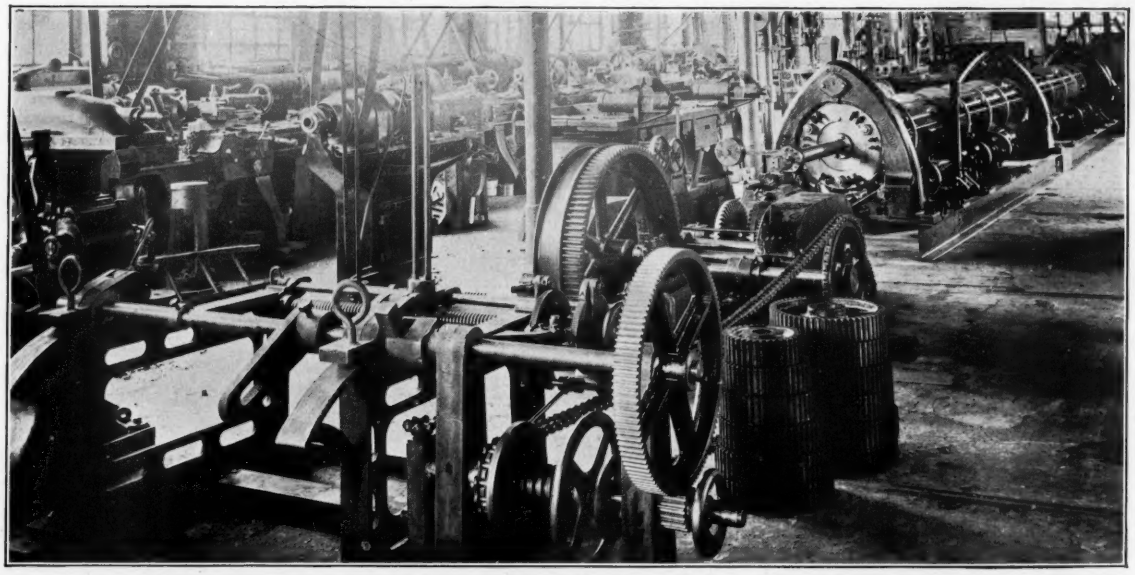


Fig. 3. One of the Large High-speed Wire Rope Stranding Machines, E quipped with 12 Spools.

Cooperation Saves Old Wire Firm

Lesson for Manufacturers in Acceptance by Canadian Employees of a "No Profit; No Wages" Plan of Operation

By William J. McNulty

AN illustration of the truth of the axiom, "United we stand, divided we fall" has been given by one of the oldest firms in the wire and wire products industries, James Pender & Co., Ltd., in St. Johns, N. B., for half a century, manufacturers of wire, wire nails, fence, staples, toe calks, galvanized nails and bail ties.

It was in June, 1925, that the agents of the Pender firm in the islands of the West Indies notified William F. Knoll, superintendent at the plant, that it was impossible for them to continue representation of the company. They asked to be released from the Pender service, in order that they might take an agency for European shippers, among the islands off the United States seaboard of the Atlantic. In the group are Bermuda, Nassau, Demerara, St. Kitts, Trinidad, Barbados, Bahamas, Grenada, Jamaica, all winter resorts for people of the U. S., Canada and England.

Post-war Conditions Destroy Usual Markets

The Pender agents informed the concern at St. John that all their efforts to sell the products of the Pender plant among the islands went for naught, because of the delivered prices of the continental products being so low, the buyers in the islands, refused to even consider purchasing the St. John wire, wire nails, etc.

There seemed no alternative but to relinquish very reluctantly, a market that was once very profitable, but which post-war conditions had destroyed utterly. The Pender sales representatives had found it impossible to sell even a small volume of the Pender products, and had

William F. Knoll, Supt., James Pender Plant and Originator of the Cooperative Plan.

decided to drop the St. John firm in favor of a continental producer. The continental producers were able to ship across the Atlantic to St. John and Halifax, N. S., by transatlantic lines, and thence by Canada-West Indies steamship lines, to the various islands that embrace the Indies group.

Mr. Knoll realized only too well, that, under existing conditions in his plant, it was out of the question to compete with the prices offered by the invaders from Europe. However, before writing out the release asked for by the Pender sales agents, he decided to give the matter some intensive study.

Out of this thought there came a plan which he has styled, "No profit; No wages".

After originating the project, the chief barrier faced Mr. Knoll. All the thought was wasted unless the employees placed the seal of approval on the plan.

A conference was called and all the workers invited to meet the executives of the company, headed by Mr. Knoll, in the plant. At that meeting, everything was clearly explained by the superintendent, the history of the West Indies market being traced from more profitable years to the stagnation period. Also, how the company had made valiant efforts to retain its hold on the market, only to see that grip gradually loosening, until it was now completely off. It was impossible to sell a dollar's worth of the Pender products among the islands, because of the deluge of the European products, at much lower prices than Pender could offer —unless the Knoll plan was adopted, by the employees.

Workers Accept Cooperative Plan Unanimously

The result of the meeting was that the men accepted the proposal unanimously. They proved even more enthusiastic about the plan than the company executives. At the time, capacity production was not prevailing owing to current economic conditions that were unfavorable. The men were perfectly willing to aid in the Knoll experiment, on a cooperative basis. That is, if the sales proved negligible, there would be nothing to show for their work. However, if success crowned the experiment, the men would be paid out of the profits.

It was on August 1, 1925 that the plan was formally introduced in the Pender plant. The understanding between the firm and the men was that the employees would receive 75% of the profits, should there be any, in the market that had been practically given up as wholly lost. The balance, or 25%, would be the company's share.

When the experiment was ex-

plained to the companies operating steamers between the ports of St. John and Halifax, and the West Indies, the freight rates on the Pender products to the islands were reduced. This applied to both Canadian ports, although the great bulk of the Pender shipments to the islands were made out of St. John.

It was necessary to route shipments destined for the island of Jamaica, via Halifax. This meant a rail journey of about 250 miles, before the Pender products could be loaded on steamers. It was essential to ship by rail to Halifax, because of lack of a direct sailing at that time to Jamaica from St. John. When the situation was explained to freight executives of the railway, a reduction was given to the Pender firm for the movement of the Pender products from St. John to Halifax. This special rate was considerably under the normal figure on such transportation.

Sales Agents Accept Reduced Commission

The sales agents of the company in the West Indies volunteered to reduce their commission by one-third, when the plan was revealed to them, after they learned the employees had approved the unique plan.

One of the St. John foundries with whom the Pender firm had business relations, offered to furnish a part of the castings for repair and upkeep of nail machines at a reduced rate, when the foundry company learned of the plan to attempt the recapture of a market that about everybody had been bemoaning as hopeless, insofar as the Pender interests were concerned.

Mr. Knoll points out that all this cooperation was not only actually helpful, but morally encouraging.

For the first 3 months, the results of the working of the "No profit; No wages" plan proved very disappointing. The demand among the islands for the Pender products continued dull, despite the lowering of the prices to meet the European competition. The sales agents worked hard, but accomplished little. The continental products had obtained a powerful hold, and seemed firmly entrenched among all the islands.

There was no profit, hence the employes and the firm received nothing for the 3 months. Mr. Knoll called a conference with the men and gave them an opportunity to abandon the agreement. This they absolutely refused to do, so the plan was continued.

The plan was entirely voluntary on the part of the employees, and was for stipulated short periods. At the expiration of these periods named at the conferences, the men had the right to repudiate the experiment. At these times, the question of whether the men would continue or retire would be put to a vote. Each time, it was with no dissenting vote against the continuance. At the conferences, the workers had the right of inquiring into the workings and the results of the plan, and were entitled to all information available. At each conference, everything that happened since the immediately preceding conference was disclosed.

Although 1925 showed results about nil, the following year manifested an improvement that was heartening to the sponsor of the plan and the workers. Then, in 1927 came a big year for the experiment. For that year, the consumption of Pender products in the West Indies was heavier than for any year in the history of the Pender shipments to the islands. This was very gratifying to the executives of the company, and to the workers and the sales agents. The railway and steamship lines also participated in the benefits, in the increased movement of the wire and wire nails.

Big Benefits Follow the Plan

When the year, 1928, was closed it was found that in excess of 90% of the exports of nails from Canada to the West Indies came from the Pender plant. The balance of less than 10% of the gross consumption, was divided among 13 factories.

The cooperative plan proved very effective in coping with the avalanche of continental wire and wire products, and from a slow start in 1925, the Pender firm fought its way to supremacy in the field in which it was once the leader. The continental shippers had to take the background, in a struggle that resembled the survival of the fittest.

On January 1, 1929, James Pender & Co. released their employes from the cooperative plan formulated to regain the West Indies market. On that date, the old established company assumed full responsibility, and began paying 100% wages on products for the West Indies market. The firm has continued doing this since then.

At the inception of 1929, it was revealed that the Pender trade with the islands had been increased 300% for 1928 over any year in the annals of the marketing of the Pender products in the islands.

Cooperation Paid Both in Dollars and Cents

It was also disclosed when the company liberated the men from the execution of the plan, that the workers had received considerably more than 100% wages since the plan was introduced. The 100% wages would not have been possible as the domestic demand was not enough to assure complete operation of the plant. Indications were that the men would have been fortunate to work 75% of the normal working hours, because of a slump in the nail market generally. The loss sustained in the lean months at the start of the plan's functioning had all been paid for from the workers' and company's angles, out of the profits of 1927 and 1928.

The major credit for the unqualified success of the plan must go to Mr. Knoll. It is hardly likely that a more suitable man could be located to administer such a cooperative agreement. His record of over 30 years' experience in the

(*Please turn to page 364*)

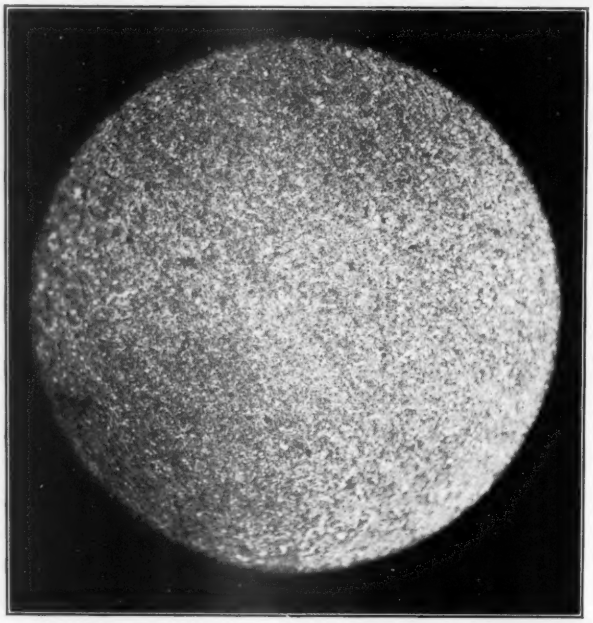
Physical Properties of Zinc of Interest to Wire Galvanizers

Simple Straightforward Explanation of Properties, Intended Primarily for the Mill Foreman or Worker

By Wallace G. Imhoff *

THERE are times when the practical galvanizer would like to have reliable data regarding the properties of the metal zinc. It is surprising how little actual data of this kind reaches the man in the shop. There are a number of reasons for this. It is not because such information is not available, because many of the leading research laboratories and technical societies have published such data. The reason seems to be rather due to the fact that practical galvanizers, and transactions of technical societies seldom meet. It is therefore the purpose of this article to bring some of this valuable data to the practical man in the shop through the medium of Wire and Wire Products, which is more liable to fall into the practical galvanizer's hands.

A very important property which every man in the shop should know is the melting point of zinc. In passing through a galvanizing department the electric recording pyrometer was seen to register 760° F., and galvanizing operations were conducted accordingly. Questioning in regard to the temperature brought out the fact that the foreman in charge thought he was galvanizing at 30° F. above the melting point of zinc. In another plant galvanizing operations were being carried out with the reading of the electric pyrometer showing 810° F. Questioning in regard to the accuracy of the pyrometer was very much resented by the superintendent in charge, so that the matter was very tactfully dropped by changing the subject of discussion. In still another instance the foreman complained about the short life of his pots. A careful check-up of his electric pyrometer showed that it was recording 30° F. high at low temperatures, and 50° F. high at higher temperatures. An exact knowledge of the melting point of the metal zinc, and a careful check up of the electric recording pyrometer once a week will do much to improve galvanizing conditions.



Chemically Pure Rolled Zinc. Magnified 36 Diameters.

The following data is of interest as illustrating the points just under discussion:

Kettle A.—Just Burned out.

Kettle B.—Electric Pyrometer 830° F, Molten Metal Thermometer 875° F, Error 45° F.

Kettle C.—Electric Pyrometer 800° F, Molten Metal Thermometer 830° F, Error 30° F.

The melting point and the boiling point of metals which may be discussed, or are found in the galvanizing department, are given below:

Table 1.
Melting Points and Boiling Points

Tin—231.9° C. 449° F. 2270° C. 4118° F.

Cadmium — 320.9° C. 609.6° F. 778° C. 1432° F.

Lead—327.4° C. 621° F. 1525° C. 2777° F.

Zinc—419.4° C. 787° F. 930° C. 1706° F.

Antimony — 630° C. 1166° F. 1440° C. 2624° F.

Aluminum — 660° C. 1220° F. 1800° C. 3272° F.

Copper — 1083° C. 1981° F. 2310° C. 4190° F.

Iron—1530° C. 2786° F. 2450° C. 4442° F.

The melting point of zinc 99.993 percent pure has been determined as 419.4° C. Using a zinc in which no impurities could be detected with the spectroscope in the laboratory of the New Jersey Zinc Company the melting point was determined as 419.45° C. The value for Prime Western zincs is slightly lower than the above.

Figure 1 is the way the purest rolled sheet zinc there is, as

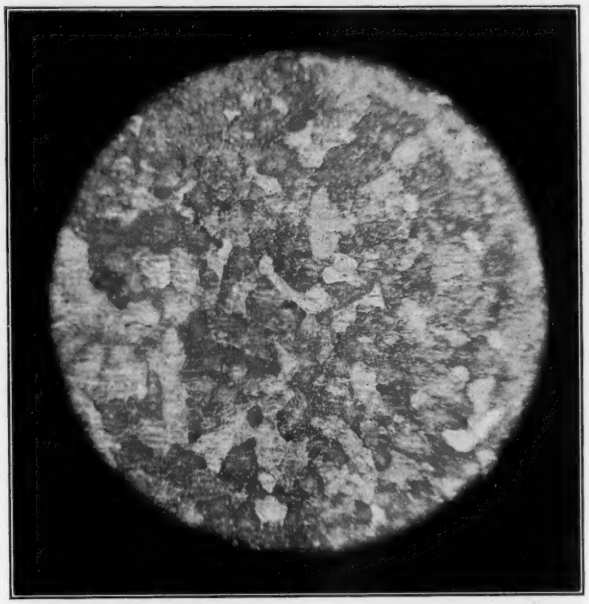
*President The Wallace G. Imhoff Co., Consultants in Zinc Coating (Hot Galvanizing), Vineland, N. J.

furnished by the New Jersey Zinc Co., looks when viewed under the microscope at 36 diameters magnification. The grain is very fine due to rolling.

A complete analysis of this metal is given below:

Iron by Precipitation	
Antimony	0.0000
Tin	0.0000
Copper	0.0000
Lead	0.0246
Iron	
Aluminum	0.0347
Zinc	99.9407
Iron by Titration	
Antimony	———
Tin	———
Copper	———
Lead	———
Iron Aluminum	(0.0267—0.0395
Zinc	———

A random slab of ordinary commercial zinc used for galvanizing was also selected and viewed under the microscope. Figure 2 shows how ordinary slab zinc that is used for galvanizing looks under the microscope at 36 diameters magnification.



Ordinary Slab Zinc for Galvanizing Purposes. Magnified 36 Diameters.

A chemical analysis of this commercial slab zinc is given below:

	Iron Precipitation	Iron Titration
Antimony	0.0000	———
Tin	0.0000	———
Copper	0.0000	———
Lead	0.1557	———
Iron	0.0459	(.0408 —.0343)
Aluminum		———
Zinc	99.7984	———

The iron content was so low it was hard to determine accurately by either method.

The melting point of zinc is of particular interest to the practical galvanizer when he is melting in a new pot. Sometimes if he has a little time, and is inclined to do a little figuring, the expansion of the metal on heating is also of interest. The writer remembers distinctly one kettle which had the solid slabs of zinc piled high above the top of the pot. On remarking about it the foreman said that was to take up the air space between the slabs. He had however neglected to take into account how much the metal expands when molten, and the result was that when the metal was finally melted down the pot ran over, and about 500 lbs. of zinc ran on the floor. This of course is not a serious thing, but it does illustrate that the metal expands considerable when molten.

In another instance the foreman at quitting time slid in too many slabs and when they melted up this pot also ran over on the floor. The coefficient of expansion as given in the International Critical Tables is given below:

Temperature —170 deg. to 60 deg. C. Linear Coefficient of Expansion 29.5x10-6 per deg. C. Temperature 0 to 300 deg. C. Linear Coefficient of Expansion 35.4x10-6 per deg. C.

The coefficient of cubical expansion has been given as 89.28 x10-6 per deg. C. between 0 deg. and 100 deg. C., which is consistent with determinations of linear expansion.

The New Jersey Zinc Co. has found that the linear expansion of rolled zinc varies according to whether the measurements are made in the direction of rolling or across this direction. The following data were obtained in the range between 20 deg. and 40 deg. C. on hot rolled high grade zinc.

Direction Tested: with grain 0.000032 per deg.C. or linear coefficient 0.000014 per deg. F. Direction tested: across grain 0. 000023 per deg. C. or linear coefficient 0.-000098 per deg. F.

The specific heat of the metal zinc is also of interest when heating problems of galvanizing are up for consideration. The specific heats for a number of different temperatures are listed below:

Temperature 0 deg. C., 100 deg. C., 200 deg. C., 300 deg. C., 400 deg. C. Specific heat, 0.0878, 0.0965, 0.1052, 0.1139, 0.1226.

The specific heats of some of the other common metals of interest to practical galvanizers are as follows:

Water	1.0000
Aluminum	.2143
Iron	.1020
Steel, Soft	.1165
Cadmium	.0550
Antimony	.0500
Copper	.0910
Lead	.0314
Tin	.0562
Zinc	.1226
Chromium	.1050
Nickel	.1089

Another point of interest which the man in the shop sometimes talks about, and would like definite authentic knowledge about is the specific gravity of the metal zinc.

With these facts clearly in front of him he is in better position to understand why the lead always settles to the bottom of the kettle, then the dross on the lead, and finally the zinc

(*Please turn to page 361*)

No Rejects

Personalities and Gossip of the Wire Industry as Told by a Roving "Trouble Shooter"

SHOOTING trouble all over the country has brought me into contact with practically everybody in the wire industry. My job enables me to view the business in perspective in such a manner that I can not help but make comparisons. Being a rank outsider I may make observations and get away with them—more or less.

Now for a sweeping general statement; the wire industry—by and large, east and west, north and south, has a standard of personnel higher than any industry it has been my good fortune to know. Most of those who comprise it are solid, substantial citizens who love their work. Many would multiply their incomes in other lines of endeavor—but the hold of wire on them is too strong.

The industry might easily be characterized by the statement that it is a "man's work". There may come a time when machinery may emasculate it but for now—wire is a man's job.

Another interesting phase of viewing the industry in perspective, is the fact that so doing brings into relief the definite sectional classifications that have grown up. It is hard to believe that a New Englander drawing wire will look different from someone in Duluth doing the same job—but it is a fact. Steel men differ from brass. Queer isn't it?

Down New England way they seem more angular. Copper and brass men are a trifle more finished, more polished, as it were, while in the Pittsburgh and Western districts they are more robust, essentially masculine.

* * * *

To bring the witness of actual cases as evidence, take MacDonald of A. S. & W. at Worcester—Perry of the same place—Read of George W. Prentiss at Holyoke—Johnson Bros. of Worcester—Space of Seymour Mfg. Co., then turn and look at Big Jim Darrow at Waukegan, Mordica of Bethlehem, Blackmer whose sweetheart is the most northerly mill in this country; Ben Spalding of Northwestern. Do I make my point?

* * * *

Wire mills are choice places in midsummer heat. In one mill in Kansas City it was 127 degrees in the middle of the day—while outside it was fairly cool—108°.

* * * *

McKeen up at the American Electrical Works at Phillipsdale, R. I., has about as pleasant a location—year in and out, as any one in the industry, while Thomas H. Luedders at Phospher Bronze Smelting Co., at Philadelphia, Pa., gets more heat than his share all year round.

* * * *

John Robison of Minnesola Steel and Wire rules an excellent summer resort but it gets down to 40 below in mid-winter—so taking it all in all heat isnt so bad.

* * * *

Bob Martin knows how hot it can be in Duluth for instead of driving his brand new Hudson four-door sedan (which he purchased just before the price drop) he spent last Sunday watching the animals in Duluth's menagerie, which by the way is not much bigger than a self-respecting dog house.

* * * *

Carl King of Wickwire Spencer at Palmer, Mass., was foxy enough to have tonsilitis right in the middle of the hot spell. He talked of having them removed, but our private opinion is that he killed two birds with one stone and had them frozen.

* * * *

In all the heat, Fred Woodford, corpulent vice president of Union Wire Die, spent a week in Chicago looking for space to locate a new factory. Either he's an optimist or his stuff must be good.

* * * *

W. E. Cameron of the Appleton Wire Co., Appleton, Wis., was on the receiving end of a line buck driven by a drunken hit and runner. Three weeks in the Appleton Hospital was necessary to repair the damage. All who know him will be glad to learn of his recovery. There are too few Dartmouth graduates as it is—up in his neck of the woods.

It is a matter of further interest to know that his grandfather began buying rod from the old Scoville and Adams Co. back in 1848 and are still customers. I tell you its a great industry.

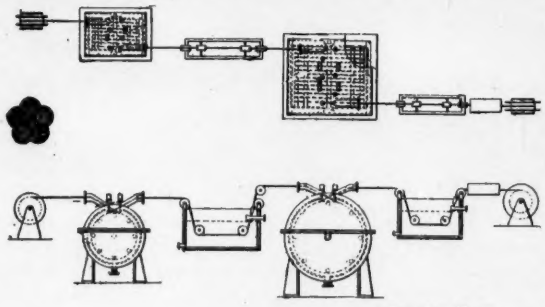
* * * *

W. H. Sommers of the Keystone Wire Co. down Peoria way knows a thing or two. The whole month of August touring the Western part of the country with his family—taking in the slack when his customers do—not getting all "het up" about something he can't control. Enterprise and a philosophical attitude are a combination hard to beat.

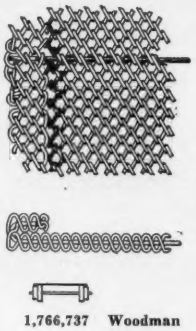
* * * *

Everybody will be glad to learn that Ben Spalding is back in the wire game. He is in charge of the mill under Hill of the Northwestern Barb Wire Co., at Sterling, Ill., and it seems like old times to see him on the job. Boy what a personality!

A REVIEW *of* RECENT PATENTS



1,766,201 Thormann



1,766,737 Woodman

No. 1,765,437. WIRE DRAWING APPARATUS. Patented June 24, 1930, by Samuel McMullan, Downers Grove, and Arthur Ehrhold Schulz, Chicago, Ill., assignors to Western Elec. Co., Inc., New York, N. Y., a Corporation of N. Y. The specific object of this invention is to provide a mechanism for stopping the coiling drum when the wire breaks or comes to an end. The mechanism comprises a clutch control, the clutch being disengaged automatically upon the breaking of the wire or when the wire ends.

No. 1,765,520. METHOD OF AND APPARATUS FOR INSULATING ELECTRICAL CONDUCTORS. Patented June 24, 1930, by Arthur Herman Adams, La Grange, Ill., assignor to Western Elec. Co., Inc., New York, N. Y., a Corporation of N. Y. Partiularly, this patent relates to a method for baking enamel insulation on wire. The method comprises in generating a high frequency electrical current outside of the wire, passing the current through the coating and through a selected portion of the conductor and thereby heating that portion to bake the enamel.

No. 1,765,795. FABRIC WITH INTERWOVEN METAL WIRE. Patented June 24, 1930, by Albert Kessler, Mittweida, Germany. This invention covers a closely-woven scrubbing cloth, comprising a fabric having normal warp and weft threads and metal wire worked together with and into the substance of part of the weft threads.

No. 1,766,201. COPPER COATED WIRE ROPE. Patented June 24, 1930, by Albert F. W. Thormann, Pittsburgh, Pa. This invention relates to the manufacture of reinforced high tension copper wire. The reinforcing consists of a steel wire rope of the required number of plies, depending on the required thickness of the wire, which in turn depends on the distance between supports and the power to be transmitted. The copper coating is deposited on the wire by electrodeposition.

No. 1,766,736. SELVAGED WIRE CONVEYOR BELT. Patented June 24, 1930, by Francis N. Woodman, Clinton, Mass., assignor to Wickwire Spencer Steel Co., New York, N. Y., a Corporation of Del. In this wire belt, the end turns of the spiral wire members are crowded together and compressed against each other to form a triple row of parallel closely adjacent wires at each edge of the fabric, thus providing longitudinally flexible selvages.

No. 1,766,737. CONVEYOR BELT. Patented June 24, 1930, by Francis N. Woodman, Clinton, Mass., assignor to Wickwire Spencer Steel Co., New York, N. Y., a Corporation of Del. The ends of adjacent wires, of this belt, are twisted together in pairs at the selvages and the latter are then folded lengthwise of the belt to form edge portions of double thickness, for reinforcing the belt and forming a thickened portion to prevent lateral displacement of material supported thereon.

No. 1,766,754. SECTIONAL WIRE CONVEYOR BELT. Patented June 24, 1930, by Vernon C. King, Worcester, Mass., assignor to Wickwire Spencer Steel Co., New York, N. Y., a Corporation of Del. So that a number of unit belts may be joined together to form a wide belt, loops of weft wires are left projecting beyond the selvage and reversely bent over the body of the belt, and lacing wires are interwoven around the projecting loops.

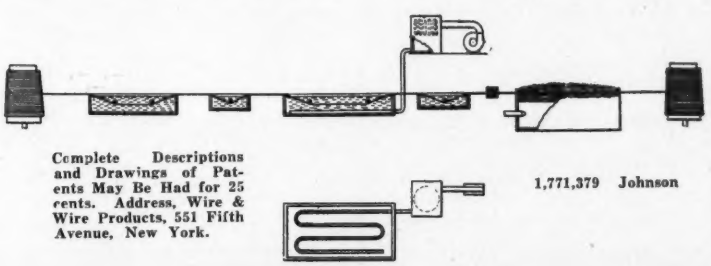
No. 1,767,814. WOVEN WIRE SCREEN. Patented June 24, 1930, by Morley Punshon Reynolds, Cleveland, Heights, O., assignor to The W. S. Tyler Co., Cleveland, O., a Corporation of Ohio. This inventor claims that the arrangement of the wires of his screen will permit free screening and the ability of the screen to resist clogging or blinding.

No. 1,769,901. CONNECTION FOR WOVEN WIRE CONVEYORS. Patented July 1, 1930, by Karl E. Peiler, West Hartford, Conn., assignor to Hartford-Empire Co., Hartford, Conn. a Corporation of Del. One of the objects of this invention is to provide a connecting means for sections of woven wire conveyors which is capable of being widened or being narrowed correspondingly according to the widening or narrowing of the conveyor sections, and thus to eliminate the objectionable projections and indentations sometimes encountered.

No. 1,769,945. WIRE ROPE OR CABLE. Patented July 8, 1930, by William C. Erkert, Peoria, Ill. For the purpose of producing a wire rope for use in heavy work, such as rotary and standard well drilling, hoisting and the like, the inventor assembles a cluster of cylindrical wire strands, each strand consisting of a multiplicity of spirally wound or twisted single wires, the strands being twisted or wound around an axially disposed cylindrical core of resilient or flexible material, such as rubber, whereby upon the winding or twisting of the strands about the core, the former will be imbedded into the latter and the latter compressed into and between the wires of the former. It is claimed that this construction will reduce internal friction.

No. 1,770,851. FLUID FILLED ELECTRIC CABLE. Patented July 15, 1930, by William C. Hayman,

(*Please turn to page 366*)



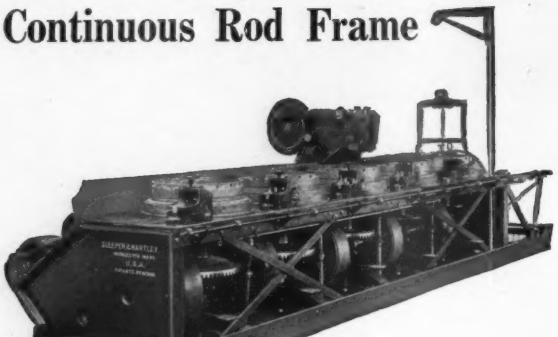
1,771,379 Johnson

Complete Descriptions and Drawings of Patents May Be Had for 25 cents. Address, Wire & Wire Products, 551 Fifth Avenue, New York.

Sleeper & Hartley TRADE MARK

Practical Continuous Wir

Continuous Rod Frame



(Patented June 3, 1924—May 12, 1925—Others pending)

Capacity—No. 5 rods to No. 14—15 wire.

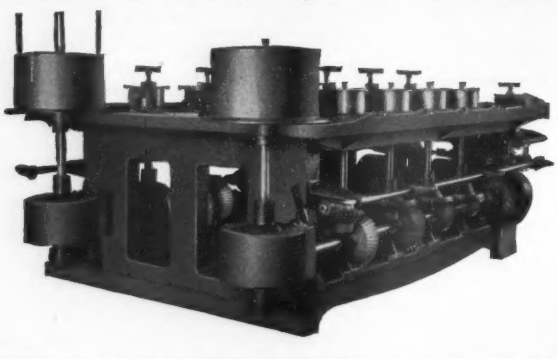
Automatic Compensation for Speed of Heads.

Ball or Roller Bearings used Throughout.

No Differential Gearing Whatever.

Made with 3, 4 or 5 Blocks as Desired.

Double 5-Draft Dry, Intermediate



Capacity—No. 14 to No. 23, high or low carbon wire.

Average Operator handles 3 to 4 blocks.

Daily Runs—No. 14-19 wire (4 hole), 1400 lbs. per Block.
No. 14-20 wire (5 hole), 1100 lbs. per Block.

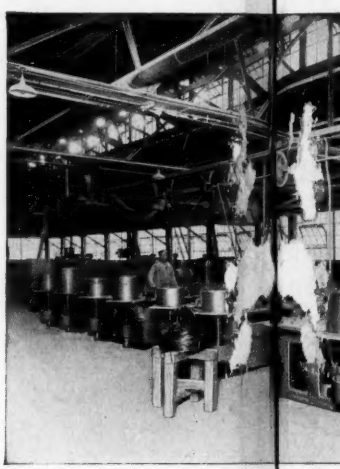
More than 550 heads of this improved model in continual operation

WHILE we also manufacture Singl Hole W especial pride in the quality of Conti which have gained a reputation of sup rity in

Using the experience gained unde ctual v tation, we are able to present to the Tra a full tinuous Wire Drawing Machines.

All of our machines are of the late types. ly used and emphasis is laid on rigid co tructio the economy of floor space effected, all o mach pactness and yet with a simplicity of de n that necessary. All are constructed of the st ma guaranteed.

Our machines are ready to go into oductio No long term "training" or "try-out" p iods a Hartley Machines.



Battery of Double Six Draft Machines Drawing High Carbon We in Wire Co., Worceste

Capacity—No. 16 to No. 2 high

Average Operator cares for four h

Daily Runs:—4000 lbs. lo carbo
3000 lbs. hi ca

Direct driven with silent chain. gear bearings. Variable sp for f

American Agents

NEW YORK TERRITORY—Triplex Machine Tool Co.
PHILADELPHIA TERRITORY—Swind Machinery Co.
CHICAGO TERRITORY—Neff, Kohlbusch & Bissell, Inc.
SAN FRANCISCO—L. G. Henes Machine Tool Division of Jenison Machinery Co.
LOS ANGELES—L. G. Henes Machinery Co.

SLEEPER & HA

WORCESTER, MAS

s Wire Drawing Machines

Sleeper & Hartley TRADE MARK

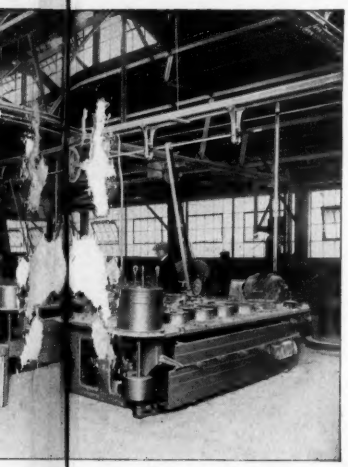
#66 U.S. PAT. OFF. & PRINCIPAL FOREIGN COUNTRIES

Single-Hole Wire Drawing Machines, we take
y of Continuous Wire Drawing Machines,
of superiority in the Wire Mill field.

under actual working conditions and experimen-
the Trade a full line of time-tried, reliable Con-

ne latest types. Anti-friction bearings are wide-
rigid construction. A feature of the entire line is
d, all machines being built with great com-
y of design that allows for easy adjustment when
of the best materials throughout and are so

o into production on delivery at the Wire Mill.
-out" periods are necessary with Sleeper and

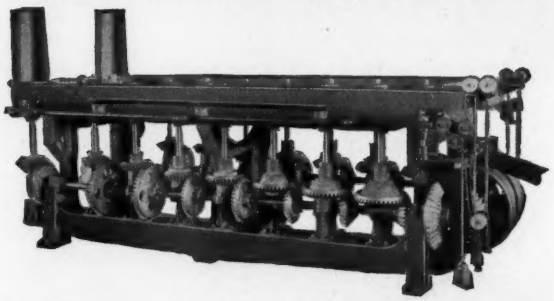


le Six-Draft Dry Continuous
oon Wire in the Plant of The Thompson
Co., Worcester, Mass.

o No. 2 high or low carbon wire.
res for four blocks (two machines).
lbs. low carbon wire in 10 hours.
lbs. high carbon wire in 10 hours.

chain. gears throughout. Anti-friction
iable speed for finishing block.

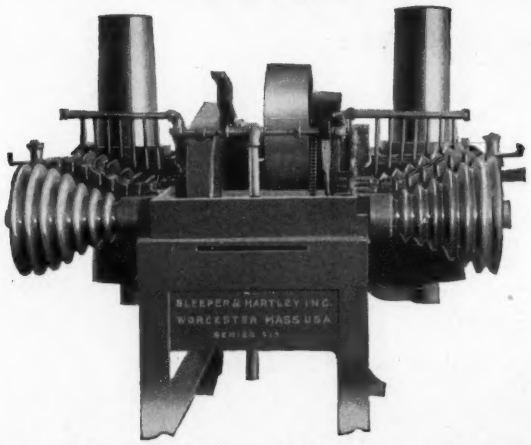
Double 8-Draft Wet, Fine Wire



Capacity—No. 22 to No. 36, high or low carbon wire.
Average Operator handles six blocks.
Daily Runs—No. 22-33 wire (8 holes) 660 lbs. of wire per 10-hour working day.

We have manufactured several thousand of these heads for Wire Mills throughout the country

Improved Double 8-Draft Wet, Cone Type



Capacity—No. 13 to No. 24, high or low carbon, or the finer woven screen wires.
Average Operator runs 6 to 12 machines, producing up to 1500 pounds of wire per day.

Machines staunchly built in six or eight drafts. Cones travel at 135 R. P. M., and draw 283 feet of wire per minute. Floor space —5′ 6″ by 4′ 6″.

HARTLEY, INC.

ER, MASS., U.S. A.

Foreign Agents

UNITED KINGDOM—Mr. Fredk. A. Perry, 63 Queen Victoria St., London, E. C. 4

MONTREAL AND TORONTO—Arthur Jackson Machine Tool Co.

AUSTRALIA AND NEW ZEALAND—Edwin Wood Pty. Ltd., Melbourne

JAPAN—Andrews & George Co., Tokyo

NEWS *of the* INDUSTRY

Foreign Trade Opportunities reported by the Bureau of Foreign and Domestic Commerce during the month of August include inquiries for wire or wire products from the following sources: Electrical wiring supplies (46558) Montreal, Canada; plain and barbed wire (46563) Bahia, Brazil; wire-working machinery (46,766) Dresden, Germany; machinery for making copper-plated spiral springs (46758) Stockholm, Sweden; rolling mill equipment (46698) Lille, France; nuts and bolts and cadmium plated bolts drilled for cotter pins (46936) Winnipeg, Canada; braiding machine for covering electric wire and cables (46842) Turin, Italy; aluminum foil in sheets (47035) Cali, Columbia.

Latest News of German Wire Industry

Exports of copper wire from Germany show a big advance. In the years 1926-28 exports fluctuated between 500 and 800 tons monthly. In May of this year exports amounted to 1,961 tons and the average of the first 5 months is 1,380 tons. Great Britain is the best customer consuming approximately 26% and France the second best consuming 20-22% of the German export figure. The U. S. A. buy increasing quantities in Germany, as the monthly export average of this year was 69 tons, compared with 46 tons in 1929 and 37 tons in 1928. The average value of 1 ton exported to the U. S. A. was this year $4435.—as compared with $541 last year, due to the reduction of the copper price.

The German wire machinery industry has a fair number of orders from Canadian importers, especially for wire rope and wire nail machinery as a consequence of the new Canadian tariff, which favors the wire production in Canada.

A number of German merchants trading in second-hand machinery have organised an export company, principally for the sale of second-hand wire-working machinery. Such machinery will be exported to Latin America, the Far East and the Mediterranean countries. Great Britain, which formerly was a market for such machinery, at present buys no second-hand wire machinery.

Belgian and German makers of cut steel nails, as sold in China by a number of American makers, are endeavoring to get into this trade, always very small with the continental makers. The agents in China have samples of continental cut steel nails, said to be equal in quality to the American nails, but much cheaper. The price, at which Belgian makers offer such nails of assorted specifications is now £11.15.0 per ton c. i. f. Shanghai. Trial orders have been booked. The German price is slightly higher.

Export prices for wire and wire products have again been shaded by a few shillings. Present prices are as follows: wire nails £6.6.0, barbed wire BWG 12 £10.7.0, bright wire £6.50, galvanized wire £7.16 and varnished wire £7.2.6. All hope has been abandoned that it will be possible to establish an international cartel. The competition is extremely keen.

Dutch and German makers of wire mesh are negotiating with regard to a joint cooperation in the export trade of wires for the American market. As there is only one Dutch maker interested in the business with America, it is hoped that an agreement will not meet any difficulties.

The production of wire in Germany is considerably lower. This year the monthly production is in the neighborhood of 71,000 tons, as compared with 95,000 last year.

British Revise Steel Specifications

The British Engineering Standards Association has just issued a revision of the standard specification for structural steel for general building construction, in which all reference to the basic Bessemer process is omitted. Drawn steel wire from 0.5 in. to 0.125 in., which has been suitably heat-treated, is included. Hand-drawn wire for concrete reinforcement, not so treated, however, is dealt with in a separate specification. A tensile, in addition to a bend, test is required for concrete reinforcing bars. Temper bend tests are not now specified. The radius of the bend in the cold bend test has been reduced for bars of 1-in. diameter and less; and tolerances on the specified depth of beams and channels have been inserted.

Association Forming Standardization Committee

One of the first steps taken by the new Wire Association was the formation of a committee to give attention to the subject of standardization of wire gauges. Some work has been done along these lines by the American Society for Testing Materials, and the U. S. Bureau of Standards is constantly working in this direction. The committee will work with both these bodies and all others interested in matters which are either closely or remotely related to wire diameters. A Placement Bureau has been started. During the month of August this bureau secured superintendents for two plants and is prepared to handle without compensation applications for positions wanted and for executive and semi-executive production employees through members of the Association.

Civil Service Examination For Junior Metallurgist

Applications for junior metal-

lurgist must be on file with Civil Service Commission at Washington, D. C., not later than Sept. 9, 1930. The examination is to fill vacancies occurring in the Federal classified service throughout the United States. Entrance salaries range from $2,000 to $2,500 a year. Higher-salaried positions are filled through promotion.

The duties will consist of general metallurgical work connected with the fabrication of manufactured articles, either ferrous or nonferrous; general metallurgical work including process control, physical testing of metallurgical materials or ores, microphotography and research work on a large variety of metallurgical problems. Optional subjects are (1) physical metallurgy and (2) recovery metallurgy.

Competitors will be rated on practical questions on general metallurgy, elementary physics, elementary chemistry, general metallurgy and the optional subject chosen, and on a thesis to be handed to the examiner on the day of the examination.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

Brief Personal Mention

H. N. Otis of Anaconda Wire & Cable Co., recently was elected chairman of the flexible cord group of the National Association of Electrical Manufacturers. He succeeded David S. Davis, who resigned, and is succeeded in the office of vice president by C. A. Scott of the General Cable Corp.

—

C. N. Johns, formerly assistant plant manager, Page Steel & Wire Company, Monessen, Pa., has been appointed plant manager to succeed Arthur W. Taylor, who retired June 1.

—

Joseph E. Mills, city commissioner of purchases, Detroit, Mich., was elected president, Natl. Assn. of Purchasing Agents, at the recent annual election. John R. Whitehead, Fairbanks, Morse & Co., Chicago, William H. Jackson, Axelson Aircraft Engine Co., Los Angeles, G. A. Thompson, Empire Cos., Bartlesville, Okla., William Grossman, A. Leschen & Sons Rope Co., St. Louis, and F. H. McKnight, Westinghouse Elec. & Mfg. Co., Wilmerding, Pa., elected vice-presidents.

—

A. V. DeForest, formerly research engineer for the American Chain Co., has been appointed consulting engineer for the company. He will be associated also with the newly organized Welding Engineering & Research Co., New York.

—

W. H. Bassett, Jr., is now technical superintendent of the Anaconda Wire and Cable Co., Hastings-on-Hudson, N. Y.

COMING EVENTS

Sept. 9-12. Annual Autumn Meeting, Inst. of Metals, South Western Hotel, Southampton, England. Sec'y., G. Shaw Scott, 36 Victoria St., London, S W 1.

Sept. 14-21. Engineering and Chemical sessions, International Exposition, Liege, Belgium.

Sept. 15-20. Iron and Steel Institute (Great Britain). Autumn meeting in conjunction with the Society of Czecho-Slovakian Engineers at Prague, Czecho-Slovakia. G. C. Lloyd, 28 Victoria street, London, E. W. 1.

Sept. 22-26. Annual Convention, Amer. Soc. for Steel Treating, Stevens Hotel, Chicago, Ill. Sec'y., W. H. Eiseman, 7016 Euclid Ave., Cleveland, O.

Sept. 22-26. 12th Annual National Metal Exposition, under auspices Amer. Soc. for Steel Treating, Stevens Hotel, Chicago. Sec'y. as above.

Sept. 22-28. National Metal Congress, Stevens Hotel, Chicago, in conjunction with Amer. Soc. for Steel Treating annual convention, Metals and Iron & Steel Divisions, Amer. Inst. Mining & Metallurgical Engs., annual Fall meetings, Machine Shop Practice Division, Amer. Soc. Mech. Engs., and Amer. Welding Society.

Oct. 1-11. 6th International Exhibition of Inventions, Central Hall, Westminster, S W, London. Sec'y., G. Drury Coleman, 39 Victoria St., Westminster, London, S W 1.

Dec. 1-6. 51st Annual Meeting, Amer. Soc. Mech. Engs., Engineering Societies Bldg., West 39th St., New York. Sec'y., Calvin W. Rice.

Obituary Notices

William E. Fulton, former president, Farrel Fdry. & Mach. Co., died recently at the Waterbury Hospital, Waterbury, Conn., after a long illness. Mr. Fulton, who was 77, entered the service of the Farrel Co. in 1877, going up until he became president. He held this office until 1919 when he retired in favor of his son, William Shirley Fulton. He was president also of the Waterbury Machine Co., which he reorganized and incorporated as part of the Waterbury Farrel Fdry. & Mach. Co.

—

George G. Stuart, veteran wire salesman and district sales manager, Youngstown Sheet & Tube Co., at Cleveland, died at that city early in July. He had been in the steel business all hsi life, starting with the Pittsburgh Steel Co., later becoming salesman for the Braddock Wire Co., Braddock, Pa.

—

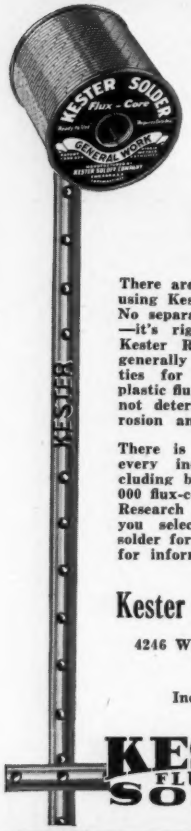
Prof. William Henry Bristol, inventor of the Bristol phone and numerous recording instruments, and president, The Bristol Co., Waterbury, died at the New Haven Hospital, June 18, after an illness of several months. He had gained an international reputation as scientist and inventor.

—

Douglas G. Harvey, president Reynolds Wire Co., Dixon, Ill., died June 17 at New Haven, Conn., while attending a class reunion at Yale University. He was graduated from the Sheffield Scientific School of that university in 1905, and was 46.

—

Walter H. Seaver, manager of sales of the wire products department, Columbia Steel Co., San Francisco, died in Berkeley, Cal., on July 13. He was born in W. Roxbury, Mass., Aug. 5, 1870.



Simplify Your Soldering

There are no waste motions in using Kester Flux-Core Solders. No separate application of flux—it's right in the core. In Kester Rosin-Core, the solder generally approved by authorities for delicate wiring, the plastic flux is most active. Does not deteriorate. Prevents corrosion and electrical leakage.

There is a Kester Solder for every industrial purpose, including bar and wire, and 48,000 flux-core wire solders. Our Research Department will help you select the most efficient solder for your purpose. Write for information; no obligation.

Kester Solder Company

4246 WRIGHTWOOD AVE.
CHICAGO

Incorporated 1899

KESTER FLUX-CORE SOLDER

AMERICAN PRESSED STEEL REELS

PRACTICALLY INDESTRUCTIBLE
STANDARD TYPES 2½ IN. TO 8 FT.
SPECIAL TYPES MADE TO ORDER
WRITE FOR CATALOG

THE AMERICAN PULLEY CO.
PRESSED STEEL
PULLEYS HANGERS HAND TRUCKS
MISCELLANEOUS STAMPINGS
4200 Wissahickon Ave., Phila., Pa.

Domestic Exports and Imports of Wire and Wire Products

Exports of iron and steel wire and wire products from the United States in May and June, 1930

(In gross tons)

Items	June 1930	May 1930	June 1929	Year through June 1930	Year through June 1929
Wire rods	4,479	4,535	2,774	25,851	23,060
Plain wire	1,877	2,664	3,789	15,583	26,127
Barbed wire and woven wire fencing	4,790	4,462	6,395	22,632	35,688
Woven wire screen cloth	144	152	150	865	902
Wire rope	450	527	738	2,720	3,921
Insulated wire and cable	17	34	45	326	594
Other wire and manufactures	624	634	1,017	4,336	5,759
Wire nails	625	623	952	3,816	7,672
Nails other than wire	437	632	868	3,147	4,292
Tacks	47	40	60	256	1,343
Bolts, nuts, rivets, except track	783	990	1,206	6,025	8,127

Imports of iron and steel wire and wire products into the United States

(In gross tons)

Items	June 1930	May 1930	June 1929	Year through June 1930	Year through June 1929
Wire rods	774	490	1,336	5,697	8,596
Barbed wire	272	283	612	2,345	2,965
Round iron and steel wire	322	829	295	2,845	3,266
Steel telegraph & telephone wire	1	1		19	
Flat wire and strip steel	75	110	162	740	1,103
Wire rope and strand	208	248	256	1,444	1,264
Other wire	25	5	85	189	349
Nails, tacks and staples	453	229	1,283	2,317	4,744
Bolts, nuts, rivets and washers	21	59	32	235	136

Imports cover June 1-17 only.

LOWER shipments in more than four-fifths of the items lowered the export trade in June to its lowest level in any month since February 1926. The total was 159,392. Among the wire products, wire rods show the big increase over June 1929 while fairly heavy decreases were indicated in almost all the other products.

The enactment of the new tariff law on the products imported lowered the statistics so that these cover only the first 17 days of the month and strictly speaking the figures given for June are not comparable with the previous month or June 1929. Despite the shortened period round iron and steel wire showed an increase for the full month of June 1929, with two exceptions the other products appear to be running about equal to last year.

Imports of card clothing rose to 13,187 square feet valued at $19,123, the United Kingdom supplying 12,244 square feet valued at $17,684 and the remainder coming from Switzerland and Germany. Imports of wire cloth and screening totaled only 20,911 square feet—14,040 square feet from Germany, 5,633 square feet from Canada, 513 square feet from France, 325 square feet from Sweden, and 400 square feet from Japan.

The trade in wire heddles rose to 920,000 pieces, 816,000 coming from France and 104,000 from Germany. Receipts of wood screws totaled 18,171 gross valued at $1,936, of which 18,146 gross valued at $1,917 came from Sweden.

The Eastern Rolling Mills, Brooklyn, N. Y., declared extra dividends—50c cash, 2% stock on the common.

The Waterbury Wire Die Co.

Diamond, Composition and CHILLED IRON DIES
Waterbury, Conn.

Wire Association Comes Into Being

What Was Said and Done at Buffalo Meeting

THE meeting of the Wire and Wire Products Division convened at the Hotel Statler, Buffalo, June 18, at 9:30 a. m., with Richard E. Brown, president of Wire & Wire Products, presiding.

CHAIRMAN BROWN: Gentlemen, if you will be seated, we'll start this meeting. Of course, you know that this is the first time we have ever had a wire meeting. Some time ago in talking with Mr. Lewis of the Morgan Construction Co., it was felt that there should be a meeting time and place for the wire industry where we could exchange ideas. As a publisher I could start such a movement without being accused of wanting to influence people. So this is the outgrowth.

Then followed the Amer. Steel & Wire film, and Mr. Lewis' paper.

CHAIRMAN BROWN: Are there any questions? Before the next speaker we will have these cards passed around. Please sign your name, address, company, and whether you favor forming an association of some kind. We will send all who sign cards copies of the discussion. It will also give us a chance to check up on the attendance, because we want to try to make this a permanent affair. I have an idea that we ought to form some kind of organization in this industry and have semi-annual or annual meetings and perhaps have a show in connection with them. I'd like to ask you a direct question for my own information. Do you gentlemen think it would be of benefit to yourselves and the industry to hold meetings such as this twice a year? And out of them evolve an association of some kind for the benefit of the industry at large?

If anyone has any suggestions along that line I'd like him to offer them at this time.

MR. WILLIAM D. PIERSON, (Waterbury Farrel Foundry Co.): Do you have in

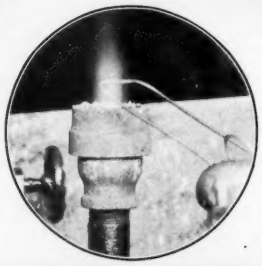
WIRE DRAWING DIAMOND DIES

IN NICKEL STEEL SETTINGS

Manufacturers for Over 35 Years
[Originators of the Steel Setting]

F. KRAUSE & CO., Inc.
250-252-Ogden Ave.
JERSEY CITY, N. J.

HANDY & HARMAN Silver Solders QUALITY SERVICE



STRONG JOINTS MADE QUICKLY,—

Wire Mills, all over the country, use

"HANDY" SILVER SOLDERS

for joining spool-ends or short lengths in copper, brass and other types of wire, of all gauges, down to hair-like filaments.

These solders make joints so strong and ductile that they withstand all the successive cold-drawing operations—and they have high electrical conductivity.

Wire workers should post themselves on silver solders. Send for our Bulletin No. 3WW.

HANDY & HARMAN
Executive Offices
57 William St.,
New York City

Steel drums *for* reels

reduce investment

They are inexpensive and greatly increase the life of the reel.

reduce repairs

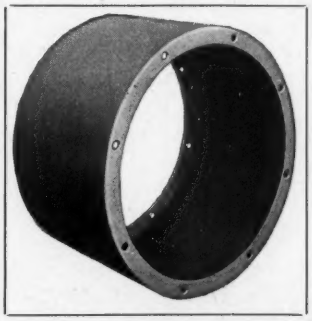
They are stronger and make a more sturdy reel.

increase protection

They have smooth surfaces, no nails and do not crack or splinter.

Your present wooden shipping and shop reels can be equipped with "RED HEAD" Steel Drums that will greatly increase the life of the reel. These drums are convertible from wooden to "RED HEAD" Steel Heads at anytime.

Red Head



Manufactured and Sold by

R. B. HAYWARD COMPANY

1714-1736 SheffieldAve.,Chicago and Graybar Bldg., New York

Under license arrangement with Electrical Research Products, Inc. Subsidiary of Western Electric Company, Incorporated.

"The House of Service"

BELLET DIAMOND DIE WORKS
(manufacturers of Diamond Dies)

Announce

"BELLET" COMPOSITION DIES

Write for Information
to
BELLET DIAMOND DIE WORKS
315 5th Ave., New York, N. Y.
Factories: Trevoux, France, New York, N. Y.

Metal Spools for Wire Drawing

Metal Spools for Annealing

Metal Bound Spools for Shipping

Metal Bound Reels for Shipping

Hubbard Spool Co.
1620-32 Carroll Avenue
Chicago

mind the limiting of the organization to manufacturers of machine wire or the like?

CHAIRMAN BROWN: No, I don't believe so. I had in mind that the association would be something similar to the American Water Works Association, where they exhibited once a year. There they had two divisions and the technical men had a separate organization but both divisions met once a year but the technical men could have as many meetings during the year as they wanted. As far as expense is concerned, Wire & Wire Products will do all the necessary work to start the movement going and if we can get the movement going and the men in the industry will take hold of it, we'll do everything that will help it along. All I want you men to do is answer "yes" or "no" to the question on the cards we're going to pass out.

MR. R. M. HUSSEY, (Jones & Laughlin Steel Corp.: Would this be apart from the interest that the Association of Iron & Steel Electrical Engineers take in this particular subject?

CHAIRMAN BROWN: No, as a matter of fact, I have taken this up with Mr. Kelly and he is very willing to have us as a permanent wire division to be affiliated with this Association. This would be very similar in many respects to the Combustion section.

MR. POOLE: I personally believe that an Association such as you are proposing would be a very good thing among the wire men but to make it successful we have got to get away from what I have heard several times here today. That is, "He can tell if he will, but he won't."

If there is any business where they hold things close to their chests it's in the wire business. Unless that is done away with I don't think the Association will do any good.

CHAIRMAN BROWN: I'll give you my answer to that. Three years ago when we took over Wire & Wire Products, it was very hard to get any information from any of the manu-

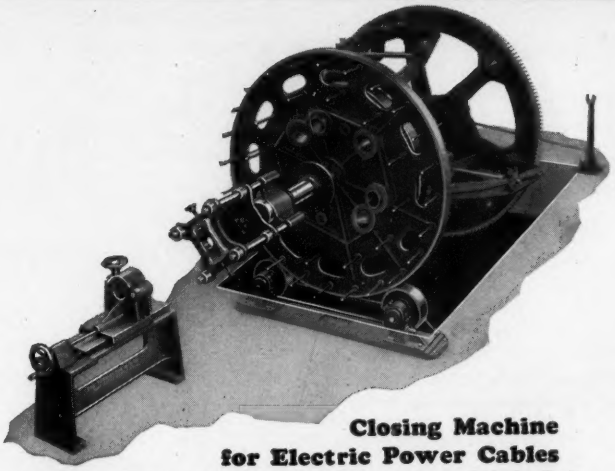
facturers or mills. We got our real start from getting information on foreign practices and after we got that some of these men loosened up and now we have access to practically every one of their departments. We don't want to start anything if anyone thinks it's a secret process.

I have had engineers tell me that they have secrets, that is, secret processes that no one else knows about. Then there would be other engineers who would come up and tell me that they also had secret processes for this or that thing. Some of you have methods of handling the chemical side of it, and here and there one fellow has a method of handling material, another fellow has a trick in pickling, etc., but it isn't giving you a nickel's worth of advantage as most of your secrets are not at all secret. You might just as well help the industry, because if one fellow gives his idea, the other will give his and you'll get more out of it by this exchange of ideas.

If enough men evince interest in a Wire Division, I would say, get a few men together and get something worked out. As I said before, Wire & Wire Products will do anything to help the thing along. We are in a position here where we are individual and independent in this matter. The industry does need some meeting place where you can interchange your ideas and get information. This meeting today is an evidence of such interest.

We had no idea that we would get 200 men to come to this first meeting; we thought if we had about 25 at the most we would be doing a good job. Now more than 200 of you are at this meeting as a result of the notices sent out. If we create an organization we should all get something out of it. What do you think about it?

CHAIRMAN BROWN: Are there any further questions? Now before going to the next speaker I want to say that the cards have been practically unanimous in saying "yes" to



Closing Machine for Electric Power Cables

THIS machine receives two, three or four reels, as desired. Reels 48" Dia. x 36" over all width, held in position inclined to hollow main spindle, minimizing bending of conductors.

Planetary or rigid frame operation as desired, spindles provided for filler cops.

Twisting plate, closing die, capstan and receive reel take up arc included.

Machinery for the manufacture of rod, wire and cable — Special Machinery.

The Torrington Mfg. Co.
Torrington - Conn, U.S.A.
44 Franklin St.

"EISLER ELECTRIC"

Wire Cutting and Straightening Machines

Machine No. 110

Cutting Lengths 1/64" to 4". Wire Sizes .002 to .040. Production 75-125 Per Minute, Depending on Length. Machine is of sturdy and compact construction. Many Types and Styles, for all classes of work. Send for our Wire Cutting Machine Pamphlet.

SPOT WELDER

Suitable For Extremely Light and Fine Welding.

Machine No. 93-R

Eisler Electric Spot Welders are extensively employed in the manufacture of Radio Tubes, Incandescent Lamps, Jewelry, Metal Novelties, Sheet Metal Work, Wire Welding, Etc. Wire or sheet stock as fine as .0005" to 1/16" may be welded or fused together. Made in many sizes and styles.

SEND FOR BULLETINS

Eisler Electric Corporation

Successors to the Eisler Engineering Co., Inc.

758 South Thirteenth St. Newark, N. J.

GLOBE DIAMOND DIES

for Wire Drawing

We have concentrated on the following four outstanding points, required to make a perfect die, with the following results:
1. We use utmost care in the selection of HIGHEST QUALITY GLOBULAR DIAMONDS.
2. Our PATENTED REINFORCED STEEL SETTING has been further improved, and now the diamond is at no time exposed to a greater heat, than is required for brazing with silver solder.
3. Shaping of the hole is done by a new process which gives absolute results as to any shape desired, and assures smooth and easy drawing.
4. Roundness of hole and accuracy in sizes are not problems any more, as perfect results in that respect are easily accomplished with a perfectly shaped die.

Our representative will gladly call on request.

GLOBE WIRE DIE CORP.

30 Park Place New York, N. Y.

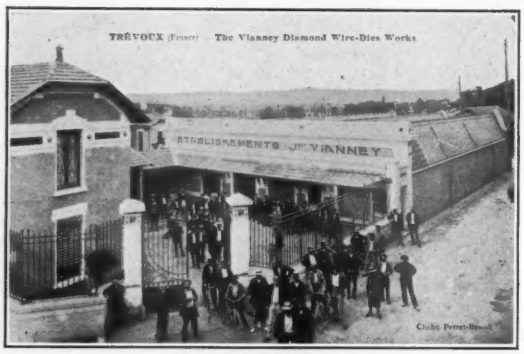
TELEPHONE: WORTH 1986

Branches: Detroit, Chicago, Cleveland, Buffalo

European Offices: Antwerp, Amsterdam, London, Paris

VIANNEY

Famous Wire Drawing Diamond Dies



MAIN PLANT: TREVOUX, FRANCE

Other French Plants Located at Vezeronce & Le Creusot

NEW YORK Office and Plant, 100 FIFTH AVENUE

my question. That means that they'd like a continuance of these meetings and the formation of an association. We only had two "nos" and everybody else said "yes."

I'd like to have a committee take hold of this. I'd like to ask Mr. Poole—he's vice-president of the Carpenter Steel Company—if he will serve on that committee.

MR. POOLE: Yes, I'll serve, Mr. Chairman.

CHAIRMAN BROWN: Mr. Kempton, will you serve on that committee?

MR. KEMPTON: (American Steel & Wire Co.) Yes.

CHAIRMAN BROWN: Mr. Lewis, will you serve on the committee?

MR. LEWIS: I'd rather not. I think the committee, as well as the Association, should be formed entirely of wire executives.

CHAIRMAN BROWN: Mr. Pierson, will you serve?

MR. PIERSON (Waterbury Farrel F'dry & Machine Co.): Yes, but is it going to be composed of just a few branches of wire?

CHAIRMAN BROWN: Let me say in explaining, that the purpose is to make it a general wire association or institute including the steel and non-ferrous people. We are trying to get it as a whole and every branch of wire should be represented. That didn't appear in the literature we sent out. Nothing was said about it but that's our purpose.

CHAIRMAN BROWN: Mr. Wilkins, I want you to serve on that committee. Will you serve?

MR. WILKINS (Wickwire Bros.): All right.

CHAIRMAN BROWN: I have a card here signed by Fred Crapo. Will you serve on that committee, Mr. Crapo?

MR. FRED M. CRAPO, (Indiana Steel & Wire Co., Muncie, Ind.): I shall be very glad to.

CHAIRMAN BROWN: Thank you very much. I would like two other members of the committee. Can anybody else make any suggestions?

(To be concluded)

Clifford D. Voris has retired as general manager and secretary of Mid-States Steel & Wire Co., Crawfordsville, Ind. He became connected with the Indiana Wire Fence Co., now out of business, in 1888, and later was associated with Capt. W. P. Herron in the organization of the Crawfordsville Wire Co., which later burned down.

—

Howard H. Bristol, formerly vice president, Bristol Co., Waterbury, Conn., manufacturer of recording instruments, has been elected president to succeed the late William H. Bristol. **Carlton W. Bristol** now is vice president. Other officers are: Henry L. Griggs, vice president; Samuel R. Bristol, secretary-treasurer; and Harris Whittemore, Jr., assistant treasurer.

—

J. M. Schoonmaker, Jr., vice president, treasurer and director, Standard Steel Spring Co., Coraopolis, Pa., has been elected president, General Aviation Corp., and Fokker Aircraft Corp., aviation subsidiaries of the General Motors Corp. He succeeds Harris M. Hanshue, resigned.

Physical Properties of Zinc

(*Continued from page 349*)

above the dross. The specific gravity of zinc varies slightly with the composition and physical state of the metal. For a pure cast zinc with an analysis of 99.993% pure the value is 7.131 grams per cubic centimeter at 25° C. On rolled zinc of the same order of purity values ranging from 7.135 to 7.150 have been obtained. The value of 7.142 has been widely accepted as an average figure for zinc.

Practical galvanizers are also interested to know the specific gravity when molten since there are many times when they would like to find out how much metal the kettle holds. At the melting point of zinc (787 deg. F.) the specific gravity is 6.92; at 600 deg. C. it is 6.81; and at 800 deg. C. the value is 6.57.

The only concern SPECIALIZING in the manufacture of

Wire Drawing Soaps

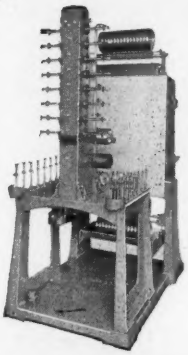
SINCE 1892

THE J. T. ROBERTSON CO., INC.

SYRACUSE, N. Y.

Ask about our special soaps for use with the new alloy dies.

(4)



AIMCO R-16 MODEL WIRE ENAMELING MACHINE

Enamels Wire 36 B. & S. Gauge and Finer.
Electrically Heated Oven with Thermostatic Control.
Finished Wire Spindles Individually Controlled.
Traverse is Adjustable for Different Spool Dimensions.
Low Cost of Enameling Wire is Due to Ease of Operation and Number of Spindles one Operator can tend.
Self-Contained on Bed-Plate.
Motor Driven.
Motor included.

EST. 1855 AIMCO INC. 1918
"American" INSULATING MACHINERY COMPANY
REG. U.S. PAT. OFF.
517 Huntingdon St., Philadelphia, Pa., U. S. A.

STEELSKIN

REG. U. S. PAT. OFFICE

For High or Low Carbon Wire

WIRE DRAWING SOAPS

Established 22 years.

R. H. MILLER Co., Inc. Homer, N. Y.

WIRE INSULATING, STRANDING AND CABLING MACHINERY

NEW ENGLAND BUTT COMPANY

Office and Factory
304 Pearl St., Providence, R. I.

Western Office
140 So., Dearborn St., Chicago, Ill.

We build a complete line of Stranding Machines, Cabling Machines, Closing Machines, Rubber Strip Covering Machines, Measuring Machines, and Other Allied Machines for the Wire Trade.

OUR WIRE MACHINERY CATALOGUE SENT ON REQUEST

WHERE TO BUY YOUR WIRE

Manufacturers of Fine Wire

BARE FINE WIRES

Copper Wire Specially Processed for Enameling Purposes

Bronzes, Various Grades	Phosphor Bronze
Copper	Pure Tin
High Brass	Commercial Bronze
Low Brass	Silver Plated Copper
10%, 18%, 30% Nickel Silver	False Gold
Zinc	Copper Lahn
Lead	Gold Lahn

Silver Plated Copper Lahn

BRUSH WIRES

CRIMP AND STRAIGHT

Brass, Steel, Copper, Nickel Silver, Phosphor Bronze

Cadmium Wire

Metallic Fibre for packing purposes

HUDSON WIRE CO.

Successors Royle & Akin

Fine Wire Manufacturers

OSSINING Established 1902 NEW YORK

Pickling of Iron and Steel

by Wallace G. Imhoff

THIS book covers pickling room practice, and construction and maintenance of pickling equipment. Written in a manner that will appeal to practical picklers in the sheet, tin plate, strip, pipe, wire, seamless tube, enameling, foundry, hollow ware, galvanizing and lead-coating industries. The author, Wallace G. Imhoff, for 5 years was industrial fellow, investigating pickling and galvanizing at Mellon Institute of Industrial Research, University of Pittsburgh.

Scope of the work may be inferred from chapter headings which include: Facts About the Steel and Iron Base and Iron Oxides and Scale; Acids, Bath Temperature and Pickling Time; Steam, Air and Agitation; Solutions, Tanks and Contaminations; Equipment and Production Principles; Compounds and Inhibitors; Fumes, Ventilation and By-Products; Chemistry of Pickling; Departments; Pickling Steel and Copper for Tinning; and, Pickling for Zinc and Lead-Coated Sheets.

Based on practical experience obtained in plant pickling departments, and information compiled interviewing practical picklers, foremen, superintendents, managers and others. Intended for the man in the plant. In addition to 46 illustrations, a detailed list of contents and a cross index of over 575 items, the text includes a 35-page bibliography of pickling articles and books.

195 PAGES, 6 in. x 9 in. 46 ILLUSTRATIONS

Price Postpaid { $5.15 in U. S. and Canada / 25s. 6d. in other countries

The amount of metal in the pot may be roughly figured by multiplying the weight of a cubic foot of water by the specific gravity of molten zinc, and then multiplying this result by the cubic contents of the kettle. For example a kettle 20 ft. long, by 3 ft. wide, by 4 ft. deep, would hold—Wt. cubic ft. 62.4 lbs., water, 7.0, S. G. zinc 20 ft., kettle dimensions 3 ft. by 4 ft. equals 104,832 lbs. metal in pot.

Due to the fact the metal is usually 3 or 4 in. from the top this pot would probably hold about 45 tons when in operation. A wire pot has different dimensions but the metal contents are figured the same way. Attention is called to the fact that a specific gravity of 7.0 is used as this is a fair value for commercial slab zinc.

The specific gravities of some common brands of slab zinc are listed below:

7.00 7.10 7.05 7.13

There is not very much difference between the specific gravity of slab zinc, the metal in the pot, and dross as illustrated below:

Slab zinc	7.00—7.10
Metal in pot	7.21—7.23
Dross at 860 deg. F.	7.25—7.29
Lead in the bottom of pot	11.37

It is thus seen from the above figures why the lead settles to the bottom and the dross lays on top of the lead. Occasionally when the furnace design is poor, the dross may have a specific gravity so close to that of the zinc in the bath that the heat currents will float the dross, and cause it to be deposited on the work going through the pot.

The specific gravities at 20 deg. C. for some of the other common metals that are encountered around galvanizing pots are listed below:

Zinc	7.14
Tin	7.30
Iron	7.86
Cadmium	8.64
Aluminum	2.70
Lead	11.34
Copper	8.92
Antimony	6.71

The weights of these metals

in pounds per cu. ft. is also of interest to practical galvanizers:

Zinc (Cast)	439 —446
Zinc (Liquid)	405
Tin	454.9
Iron (Steel)	486.7
Cadmium	533
Aluminum	168.5
Lead	686
Copper	558
Antimony	418

The weight of the metal in the kettle may be quickly figured from the above weights.

Metallic zinc has an atomic weight 65.38 and atomic number of 30. Its electro-chemical equivalent is 1.2194 grams per amp.-hr. It crystallizes in what is known as the hexagonal system. The latent heat of fusion of zinc at 419.45 deg. C. is 26.6 gram calories per g. The latent heat of vaporization at 905 deg. C. is 426.8 gram calories per g.

The metal zinc is a bluish metal. It has a hardness of 2.5. The hardness of some of the other common metals are listed below:

Zinc	2.5
Tin	1.8
Iron	4.5
Cadmium	2.0
Aluminum	2.2
Lead	1.5
Copper	3.0
Antimony	3.0

The shrinkage of zinc is $\frac{5}{16}$ in. per ft.; of tin 1/12 in. per ft.; and of aluminum $\frac{3}{16}$ in. per ft. The tensile strength of zinc is low—4,000 to 12,000 lbs. per sq. in.

There are many times when various theories and explanations are offered for things which happen around the galvanizing kettle. A common explanation suggested very often refers to zinc's place in the electrochemical series of the elements. This series is given below:

Electrochemical Series

Alkali Metals, (Cs, Rb, K, Na, Li)

Alkaline—earth metals, (Ba, Sr, Ca)

Magnesium	Zinc
Aluminum	Cadmium
Chromium	Iron
Manganese	Cobalt

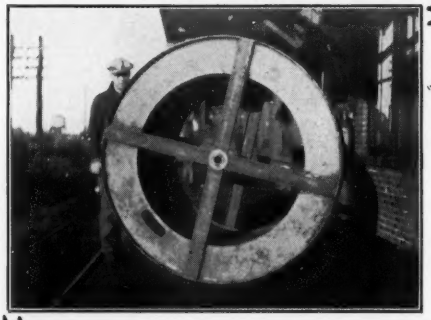
'Tis a simple operation to control a ship —but to do it safely and successfully requires the priceless ingredient

EXPERIENCE

"PREMIER"
Trade Mark Reg. U. S. Pat. Off.

Being wire drawers for over 30 years gives Driver-Harris the Experience to know the particular shape of the die for each material.
We have found by the priceless ingredient "EXPERIENCE" that our special casting method of setting is the best.
Why not let us quote on *your* diamond die requirements.

DRIVER-HARRIS COMPANY
HARRISON, NEW JERSEY
Chicago - Detroit - Morristown,N.J. - England - France
Alloy Makers since 1809



Let Apco Mossberg "BIG BOYS" work for you

How can "Big Boys" weigh so little and work so much? Pressed steel and scientific design are the answers. These Apco Mossberg Reels make handling easier and freight bills lower. And their long range wearing qualities put any worry about replacement cost way out of sight.

You have probably heard plenty of comment on Apco Mossberg Big Boys. Why not get the whole story from us. Drop us a line—there is no obligation to buy.

APCO MOSSBERG CORPORATION
ATTLEBORO, MASS.

Specialists for 20 years in developing and producing steel reels for annealing, vulcanizing and stranding; also bobbins for wire weaving.

Professional Directory

Listing in the Professional Directory is recommended to all engineers, engineering and construction firms and consultants seeking business with wire mills or plants utilizing wire in any form.

W. H. Spowers, Jr.
Consulting Engineer
551 Fifth Ave., N. Y. C.
Specializing in Galvanizing Plants Designed and Installed
Practical Engineering Advice
Vanderbilt 7395

ANNEALING SALT BATHS
FOR
Steel and Copper Wire
Inquiries Solicited
European Color & Chemical Co., Inc.
WEEHAWKEN, NEW JERSEY

Broden Construction Co.
Wire Mill and Cold Rolling Equipment
10255 Harvard Ave.
CLEVELAND, OHIO

THE WALLACE G. IMHOFF COMPANY
HOT GALVANIZING
Plants Installed Consulting Service
VINELAND, NEW JERSEY

Salesman Wanted—to sell Tungsten Carbide Dies. Must be high-class man, know the wire field and be able to supply exceptional credentials.
Splendid opportunity for right man.
Address in confidence—R. E. BROWN Secy. The Wire Association. 551 Fifth Ave., New York.

30% More Editorial Contents than in 1929. Tell Your Friends to Subscribe to Wire & Wire Products.

Due to a merger a well-known superintendent of heat treating and cold drawn work (member of Wire Association) will be available shortly. Experience covers production of wire, special shapes, churning, and centerless grinding. Exceptional credentials. Inquiries regarding this man will be held in confidence and should be addressed to R. E. Brown, Secretary, Wire Association, 551 5th Ave., N. Y.

PATENTS
TRADE-MARKS
SERVICE

Without charge or obligation, we will inform you on any questions you may put to us touching on patent, trade-mark and copyright law. You may ask: "Should I protect myself by patent or register under the trade-mark or copyright laws? What kind of a patent should I obtain?" and many other questions that may occur to you. These are vital points to consider and questions will be cheerfully answered.

Evidence of Conception

Before disclosing your invention to anyone send for blank form "EVIDENCE OF CONCEPTION" to be signed and witnessed. As registered patent attorneys we represent hundreds of inventors all over the United States and Canada in the advancement of inventions. The form "Evidence of Conception," sample, instructions relating to obtaining of patents and schedule of fees sent upon request.

Lancaster, Allwine & Rommel
Registered Patent Attorneys
473 OURAY BUILDING
WASHINGTON, D. C.
Originators of forms, "Evidence of Conception."

Nickel	Mercury
Tin	Silver
Lead	Palladium
Hydrogen	Platinum
Antimony	Gold
Bismuth	Indium
Arsenic	Rhodium
Copper	Osmium

With the knowledge of the facts about the metal zinc herein given the practical galvanizer can pretty well satisfy himself on any of the ordinary questions which may arise in his daily galvanizing operations.

Cooperation Saves Wire Firm

(*Continued from page 347*)

manufacture of wire and wire products has exhibited an unusual capacity for handling labor.

When he came to the Pender plant as superintendent about 17 years ago, the company was severely handicapped by labor troubles. The discord and strikes had cut down the volume of production as well as the quality. Since he has been in charge at the factory, the company and workers have been in complete harmony.

How Knoll's Plan Aided the Company

This has enabled the company to regain its old prestige, with much more added, and to participate extensively in the Canadian demand for wire and wire products in recent years. It is one of the few industrial firms which has gone along apparently unaffected by the prevailing economic depression in the maritime provinces. While other factories manufacturing diversified lines have been compelled to close for long or short periods or cut the working time drastically, the Pender plant continues operating on a normal scale.

The firm of James Pender & Co., Ltd. was established by the late James Pender of St. John, a pioneer in the manufacture of wire and wire products. Mr. Pender was active in politics at St. John as well as in industry. He sought election to the Canadian House of Commons from St.

John but was defeated at the polls.

Prior to settling in St. John, Mr. Knoll was located in Sydney, N. S., at the wire and wire products mill of the Dominion Iron & Steel Co. This company became a unit in a big merger under the title of the British Empire Steel Corp., Ltd. The merger acquired the Pender business, also, and it was soon afterward that Mr. Knoll became the operating chief at the St. John factory.

The Pender factory is located on the waterfront of St. John harbor. A spur line connects with the railway. The factory properties consist of four brick buildings, one of them a double structure. A separate building is used for storing and shipping.

Since the release of the workers from the "No profit; No wages" plan the development of the demand from the West Indies has continued at the same ratio. A new steamship service, with a fleet of new and modern steamers has been instituted in the service between the ports of St. John and Halifax and the islands to the south. The improved service including additional sailings has facilitated the marketing of the Pender products on the island. There are no exceptions to the rule.

German Wire Machinery

(*Continued from page 345*)

tor with a suitable number of revolutions must be chosen. In this case, the motor shaft must be hollow to allow the core wire to run through it. The electric motor and the pinion are not included in the prices.

The rotating frame discs of the laying element, which are supported on rollers at the bottom, are provided with strong races made of steel of high tensile strength. The spool yokes are split, thus they can be easily removed without having to dismount the laying element. The spool yokes are further provided with suitable collars which prevent the spools from falling through. The individual frame discs are connected with

DIAMOND

KOEBEL WAGNER

DIES

FOR:

LONG WEAR—SMOOTHNESS—
ACCURACY IN WIRE DRAWING

Koebel-Wagner diamond dies are selected from finest quality large diamonds to provide extra heavy walls.
All Koebel-Wagner diamond dies are designed with shapes to give the least resistance and maximum production on all kinds of wire.
Our diamonds are securely set in cast steel and cased in brass giving a firm setting that will outlast the die itself.
Koebel-Wagner diamond dies will draw any metal that is suitable to diamond die drawing and do it with economy, speed, and uninterrupted production.

Consult us on your diamond die problems.

Main office and factory

KOEBEL-WAGNER DIAMOND CORP.

144 ORANGE ST., NEWARK, N. J.

Branches:

New York—Indianapolis—Detroit—Chicago—Cleveland

THE MOST RELIABLE

DIAMOND DIES

ON THE MARKET TODAY
USE OUR DIES
FOR SAFE and SUSTAINED PRODUCTION

COCHAUD WIRE DIE CORP'N

Manufacturers of

WIRE DRAWING DIAMOND DIES

Factories: { TREVOUX; Pont-De-Vaux-France
{ NEW YORK, 300 West 56th Street

Tel. Columbus 7439

WIRE DRAWING Machinery and Equipment

Rod Frames—16" Frames
8" Frames—Take-Up Frames
Wire Pointers—Puller Tongs
General Castings for Wire Mill Use
Circulars on Request.

E. J. SCUDDER FOUNDRY & MACHINE CO. TRENTON N. J.

URDIKA

ELMARID

The most improved metal composition die.

Manufactured in sizes ranging from .010" to .250"

STEEL SET

DIAMOND DIES

Highest Quality

Accurate Size Smooth Draw

URDIKA

WIRE DIE WORKS, INC.

129 Fulton Street New York City

one another by a number of strong rods, by means of double locked cap screws, perfect rigidity of the complete laying element being thus arrived at. The very high output of these machines is due to the number of revolutions and the length of lay, which in the case of a machine with spools having holding capacity of 22 lbs., each running at 1,000 r.p.m. and with a length of lay 1 3/16 in., will amount to 5,910 ft. per hour, if allowed to work continuously.

Essex Wire Co., Highland Park, Detroit, occupying part of local plant of Ford Motor Co., is establishing a new division for production of magnet wire specialties, including coils, transformers and similar products for automobiles, and plans to begin production soon with increased force.

Recent Patents

(*Continued from page 851*)

Schenectady, N. Y., assignor to General Elec. Co., a Corporation of N. Y. With special application to cables of the type having the channel between the peripheral surface of the insulation and the inner wall of the enclosing lead sheath for the reception of fluid insulation, this invention resides in new means for forming the exterior channel.

No. 1,770,877. HIGH TENSION ELECTRICAL CABLE. Patented July 15, 1930, by Ernest W. Clark, Schenectady, N. Y., assignor to General Elec. Co., a Corporation of N. Y. This invention relates to cables of the type in which the wire conductor is insulated by a substance permeable to oil. The inventor places a strip of material, having small individual projections thereon, between the insulation and the inner wall of the sheath, thus defining an annular oil channel.

No. 1,771,379. METHOD OF COATING WIRE. Patented July 22, 1930, by Charles D. Johnson, Worcester, Mass., assignor to Johnson Steel & Wire Co., Inc., of Worcester, Mass., a Corporation of Mass. The method consists of passing uncoated wire through an aqueous metal-coating bath whereby it is coated, then passing it through a washing bath to clean it, then removing the surplus water from it and passing it immediately through a mass of highly heated granular material (such as sand) by which the metal-coated wire is both dried and polished prior to contact with the air.

BUYERS' GUIDE

For more complete information, consult the annual Directory, Index & Buyers' Guide.

ANNEALING POTS
Columbiana Boiler Co., Columbiana, O.

ANNEALING SALTS
European Color & Chemical Co., Weehawken, N. J.

ARMORING EQUIPMENT
Sleeper & Hartley, Inc., Worcester, Mass.

BAKERS
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

BRAIDER CARRIERS
Mossberg Pressed Steel Co., Attleboro, Mass.

DIES—Tungsten Carbide
Carboloy Co. Inc., New York, N. Y.
Master Wire Die Corp., New York, N. Y.
Union Wire Die Corp., New York, N. Y.

FLUXES—Soldering
Kester Solder Co., Chicago, Ill.

FURNACES—Wire Annealing
Vaughn Machinery Co., Cuyahoga Falls, O.

GALVANIZING ENGINEER
W. H. Spowers, Jr., New York, N. Y.

GALVANIZING—Hot
Wallace G. Imhoff Co., Vineland, N. J.

GALVANIZING LADLES, PANS, POTS
Columbiana Boiler Co., Columbiana, O.

LATHES—Die Reaming
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.
The Waterbury Farrel Foundry & Machine Co., Waterbury, Conn.

LIME—Pulverized
Amer. Lime & Stone Co., Bellefonte, Pa.

LUBRICANTS—Wire Drawing
R. H. Miller & Co., Homer, N. Y.
J. T. Robertson Co., Syracuse, N. Y.

CASTINGS—Wire Mill
E. J. Scudder Foundry & Machine Co., Trenton, N. J.

CRANES
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

DIES—Chilled Iron
Waterbury Wire Die Co., Waterbury, Ct.

MACHINERY—Armoring (Cable, Wire Hose)
American Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Watson Machine Co., Paterson, N. J.

MACHINERY—Braiding
Mossberg Pressed Steel Corp., Attleboro, Mass.

MACHINERY—Bundling
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.
Watson Machine Co., Paterson.

MACHINERY—Cable, Electric
Torrington Mfg. Co., Torrington, Conn.
Watson Machine Company, Paterson, N. J.

MACHINERY—Chain Making
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Coiling
Broden Const. Co., Cleveland, O.
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Cutting
American Insulating Mach'y Co., Phila., Pa.
Eisler Electric Corp., Newark, N. J.
Hallden Machine Co., Thomaston, Conn.
Lewis Machine Co., Cleveland, O.
F. B. Shuster Co., New Haven, Conn.
Sleeper & Hartley, Worcester, Mass.

MACHINERY—Enameling
American Insulating Mach'y Co., Phila., Pa.

MACHINERY—Forming
Sleeper & Hartley, Inc., Worcester, Mass.
Balloffet Diamond Wire Dies Co., Inc., N. Y. C.
Bellet Diamond Die Works, N .Y.
Cochaud Wire Die Co., New York.
Driver-Harris Co., Harrison, N. J.
Globe Wire Die Corp., New York
Koebel Wagner Diamond Corp., Newark, N. J.
F. Krause & Co., Inc., Jersey City, N. J.
Master Wire Die Corp., New York, N. Y.
Union Wire Die Corp., New York, N. Y.
Urdika Wire Die Co., N. Y. C.
Vianney Wire Die Works, New York.
Waterbury Wire Die Co., Waterbury, Ct.

MACHINERY—Galvanized Wire
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

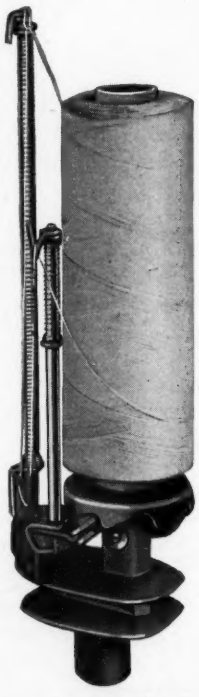
MACHINERY—Insulating
American Insulating Machinery Co., Phila.
New England Butt Co., Providence, R. I.

MACHINERY—Magnet Wire Enameling
American Insulating Mach'y Co., Phila., Pa.
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Measuring Wire
New England Butt. Co., Providence, R. I.
Watson Machine Company, Paterson, N. J.

MACHINERY—Nail
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Panning
American Insulating Machinery Co., Phila.



Patented

Mosspeed Braider Carriers

For Increased Production at Lower Operating Cost And a Better Braid

THESE carriers with their patented spring tension take-up, have won out in the battle for increased production at a lower operating cost. Hundreds of thousands of Mosspeed Carriers are turning ordinary Maypole-type braiders into high-speed machines. In many instances, the effective braiding speed has been increased up to 80%. And at the same time a better braid is produced at a decided saving in yarn. Hundreds of manufacturers have found in Mosspeed Carriers the means to make money in a highly competitive market.

Write for Our Braider Booklet

MOSSBERG
PRESSED STEEL CORP.
Attleboro --- Massachusetts --- U. S. A.
Greenville, S. C. Dallas, Texas

Selson Engineering Co., Ltd., 26-28 Charles St., London, E.C.1.

BUYERS' GUIDE, Continued

MACHINERY—Rod
Torrington Mfg. Co., Torrington, Conn.

MACHINERY—Screw Wire
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Spooling
American Insulating Machinery Co., Phila.
Waterbury Farrel Foundry & Machine Co., Waterbury, Conn.
Torrington Mfg. Co., Torrington, Conn.
W. E. Somerville & Co., Coal City, Ill.

MACHINERY—Spring Making
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Staple
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Straightening
Eisler Electric Corp., Newark, N. J.
Hallden Machine Co., Thomaston, Conn.
Lewis Machine Co., Cleveland, O.
F. B. Shuster, New Haven, Conn.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.

MACHINERY—Stranding
American Insulating Mach'y Co., Phila Pa.
New England Butt Co., Providence, R. I.
Torrington Mfg. Co., Torrington, Conn.
W. E. Somerville & Co., Coal City, Ill.
Sleeper & Hartley, Inc., Worcester, Mass.
Watson Machine Co., Paterson, N. J.

MACHINERY—Swaging
Sleeper & Hartley, Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrell Foundry Machine Co., Waterbury, Conn.

MACHINERY—Taping
Amer. Insulating Mach. Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Watson Machine Company, Paterson, N. J.

MACHINERY—Trolley Wire
Torrington Mfg. Co., Torrington, Conn.
Waterbury Farrel Foundry & Machine Co., Waterbury, Conn.

MACHINERY—Welding
Eisler Electric Corp., Newark, N. J.

MACHINERY—Winding
American Insulating Mach'y Co., Phila., Pa.
W. E. Somerville & Co., Coal City, Ill.
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Wire Drawing
American Insulating Machinery Co., Phila.
Broden Const. Co., Cleveland, Ohio.
Morgan Construction Co., Worcester, Mass.
E. J. Scudder Foundry & Machine Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Manufacturing Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury Farrell Foundry & Machine Co., Waterbury, Conn.

MACHINERY—Wire Rope
New England Butt Co., Providence, R. I.
Watson Machine Company, Paterson, N. J.

MACHINERY—Tube
Torrington Mfg. Co., Torrington, Conn.

NEUTRALIZING COMPOUNDS
Oakite Products, Inc., N. Y.

PACKING—Metallic Fibre
Hudson Wire Co., Ossining, N. Y.

PATENTS
Lancaster, Allwine & Rommel, Washington, D. C.

POTS
Columbiana Boiler Co., Columbiana, O.

PULLERS—Wire
E. J. Scudder Fdry. & Machine Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.

REELS
American Pulley Co., Philadelphia, Pa.
Apco-Mossberg Co., Attleboro, Mass.
R. B. Hayward Co., Chicago, Ill.
Hubbard Spool Co., Chicago, Ill.
Mossberg Pressed Steel Corp., Attleboro, Mass.

REEL CRUTCHES
Watson Machine Co., Paterson, N. J.

SOAPS—Wire Drawing
R. H. Miller Co., Homer, N. Y.
J. T. Robertson Co., Syracuse, N. Y.

SOLDER
Kester Solder Co., Chicago, Ill.

SPOOLS—Wire & Cable
American Pulley Co., Philadelphia, Pa.
Apco-Mossberg Co., Attleboro, Mass.
R. B. Hayward Co., Chicago, Ill.
Hubbard Spool Co., Chicago, Ill.
Mossberg Pressed Steel Corp., Attleboro, Mass.

TRUCKS
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

VULCANIZERS
Watson Machine Co., Paterson, N. J.

WIRE—Various Kinds
Hudson Wire Co., Ossining, N. Y.

MACHINERY—Pointing
Morgan Construction Co., Worcester, Mass.
E. J. Scudder Foundry & Machine Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
The Waterbury Farrell Foundry & Machine Co., Waterbury, Conn.

MACHINERY—Rivet
The Waterbury Farrell Foundry & Machine Co., Waterbury, Conn.

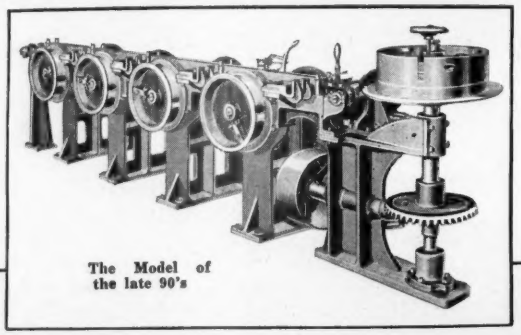
This is a carefully classified index of concerns who specialize in this industry and who advertise regularly in WIRE & WIRE PRODUCTS. Please mention WIRE when writing to these firms.

WATERBURY-FARREL TANDEMS

Three Decades Perfecting Continuous Wire Drawing Machines

We thought the old machines were pretty good in the old days (and they were) but times have changed. Today we offer not a better method nor a new principle, but—a far better machine that meets in eloquent fashion every demand of the present day—

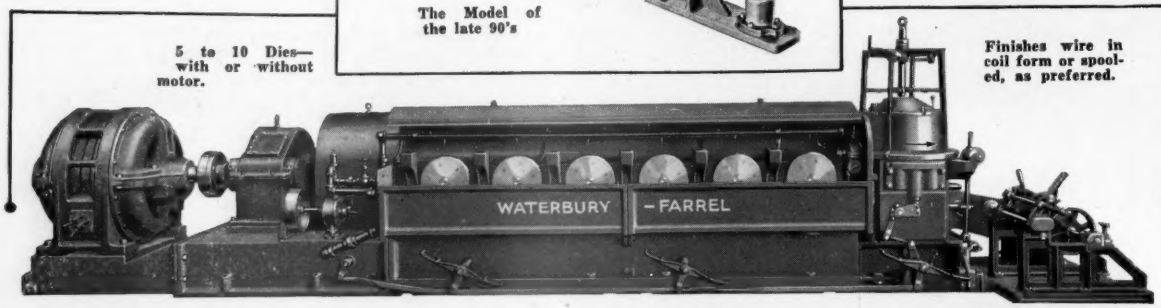
High Speed
Low Operating Cost
Mechanical Efficiency



The Model of the late 90's

5 to 10 Dies—with or without motor.

Finishes wire in coil form or spooled, as preferred.



No. 1 Machine. Forced feed lubrication. Ball Bearings throughout. Starting size, 5/16" copper rod.

The Waterbury Farrel Foundry and Machine Company

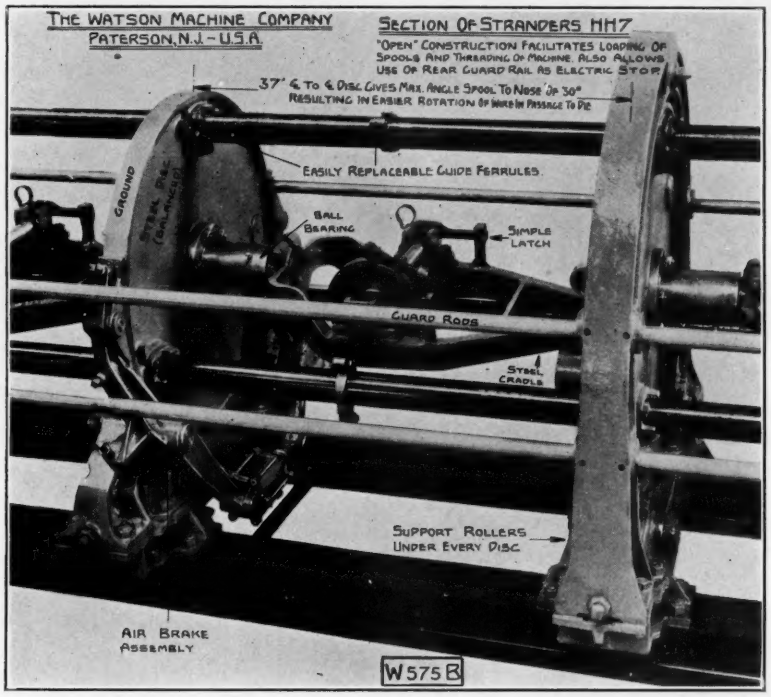
Home Office and Works: Cottage Place, Waterbury, Connecticut **Western Sales Office: Cleveland, Ohio**

THE WATSON MACHINE COMPANY

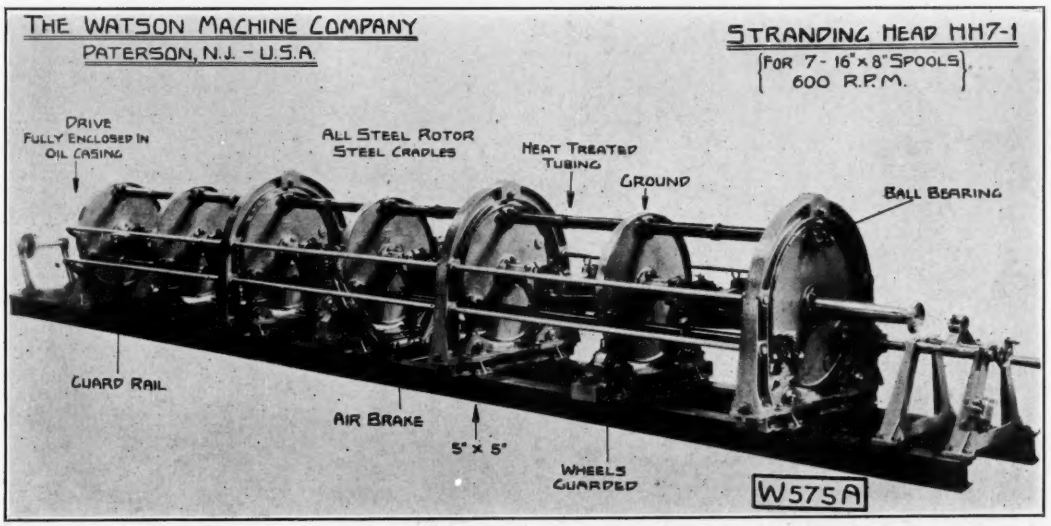
ESTABLISHED 1845

PATERSON, NEW JERSEY, U. S. A.

ENGINEERS - FOUNDERS - MACHINISTS

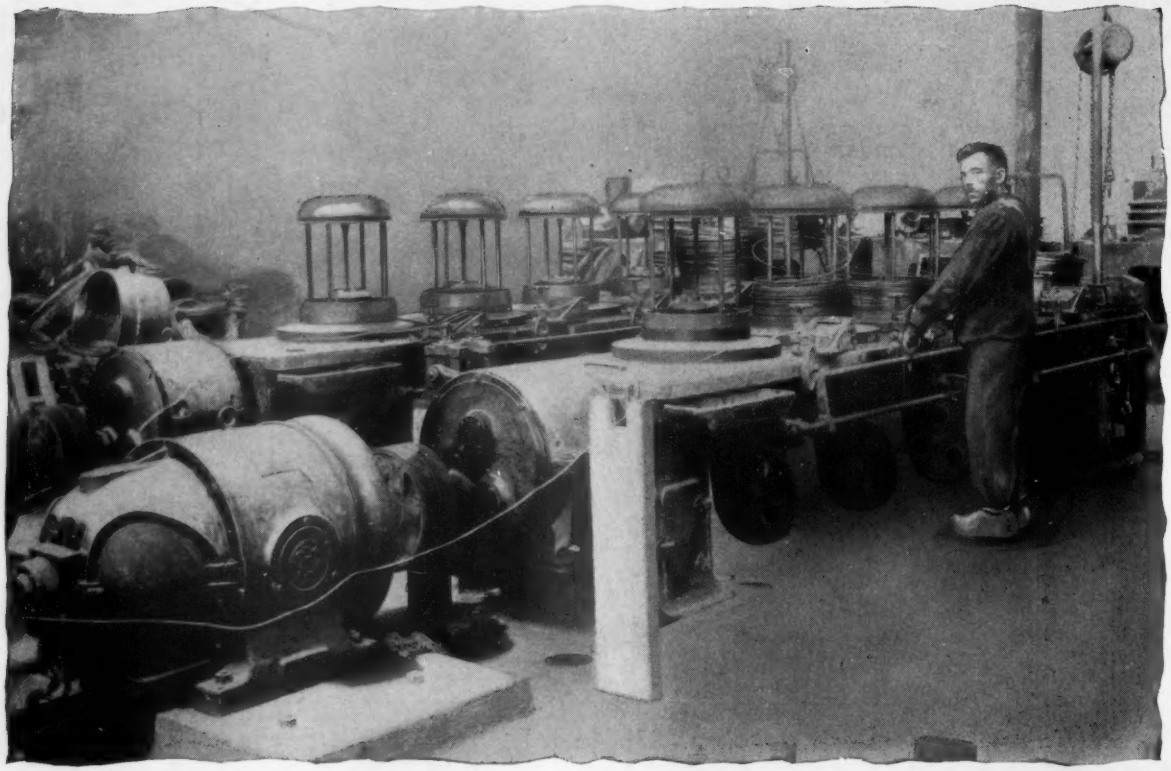

THE WATSON MACHINE COMPANY
PATERSON, N.J. - U.S.A.
SECTION OF STRANDERS MH7
"OPEN" CONSTRUCTION FACILITATES LOADING OF SPOOLS AND THREADING OF MACHINE. ALSO ALLOWS USE OF REAR GUARD RAIL AS ELECTRIC STOP
37" & 4 TO 4 DISC GIVES MAX. ANGLE SPOOL TO NOSE OF 30° RESULTING IN EASIER ROTATION OF WIRE IN PASSAGE TO DIE
EASILY REPLACEABLE GUIDE FERRULES
GROUND
STEEL RIM (BALANCED)
BALL BEARING
SIMPLE LATCH
GUARD RODS
STEEL CRADLE
SUPPORT ROLLERS UNDER EVERY DISC
AIR BRAKE ASSEMBLY
W575B

High Speed—Smooth Running—All Steel Rotor—Completely Ball Bearing—Open Construction Results in Maximum Operating Efficiency



ELECTRICAL WIRE AND CABLE
WIRE ROPE and CORDAGE MACHINERY

Morgan-Connor Wire Machines In Europe



In this European mill Morgan-Connor Wire Machines have raised production per man hour from 254 pounds to 1154 pounds, in 13½ gauge.

MORGAN CONSTRUCTION CO.,
Worcester, Mass., U. S. A.

Sole licensee for Morgan-Conner Wire Machines in Europe

MALMEDIE & COMPANY
Maschinenfabrik Aktiengesellschaft **Dusseldorf, Germany**

MORGAN
WORCESTER
ENGINEERS AND MANUFACTURERS